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A Magazine of Western
Ornithology



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THE CONDOR

A Magazine of Western Ornithology

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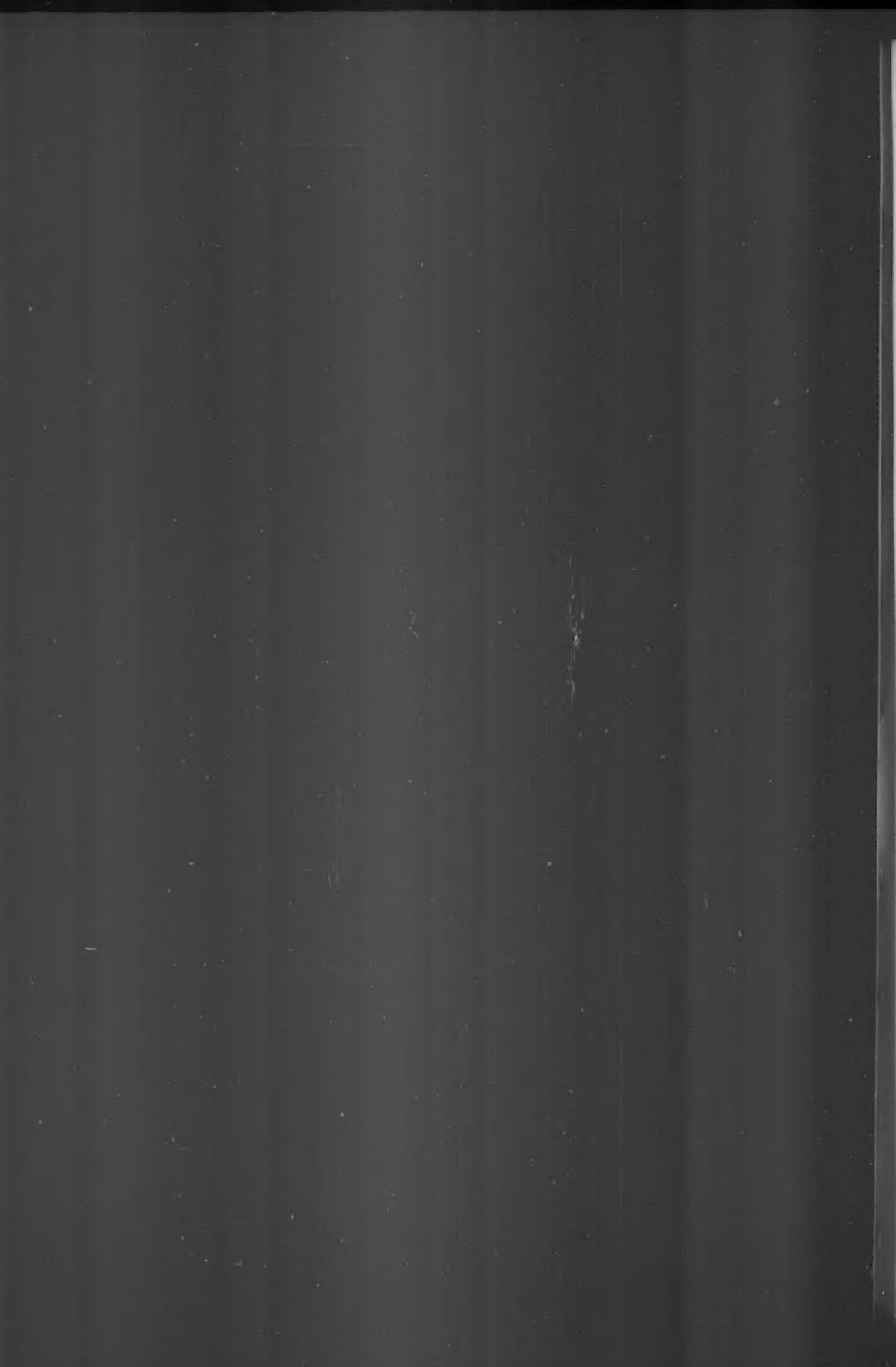
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THE CONDOR

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CONTENT, MEANING, AND POSSIBLE ORIGIN OF MALE SONG IN THE BROWN TOWHEE

By CHARLES W. QUAINANCE

While making an intensive study of the San Francisco Brown Towhee, *Pipilo fuscus petulans*, I sought to define both the content and the purpose of song in this species. The song of the Brown Towhee is essentially a repetition and elaboration of its basic *chip* note. Repeated three or four times at short intervals, this *chip* or *tsip* note suddenly is given in a rapid series simulating a trill. The rhythm of the song has been likened by Hunt (Condor, vol. 24, 1922, pp. 193-203) to a golf ball which has been dropped on a hard surface and allowed to bounce until it becomes motionless.

Hunt also described endings given, in addition to the rhythmically repeated chip notes. In the Santa Lucia Mountains in California he heard one bird of a different subspecies repeatedly give an ending which sounded like the song of the Western Winter Wren. Another towhee, singing in the Botanical Gardens in Berkeley, added a trill like that of a linnet. Hunt interpreted these endings as representing a rudimentary stage in mimicry and also as indicating evolution in the song of the species.

This spring I listened carefully to Brown Towhee songs and was surprised to find that these supposedly unusual endings were fairly common. Although varying slightly in different birds, the endings nevertheless possessed a common quality which, I believe, is unique to Brown Towhees. Further, if these figures are any indication of the frequency with which the warble-like ending is given, it would hardly be plausible to call it a matter of mimicry. I am therefore led to believe that these endings have a different significance from that given heretofore.

Of towhees which I heard singing, five different ones ended their songs with a trill or warble that might be described as linnet-like, and four, so far as I know, did not. Of the birds that did add these endings, three were located in widely separated territories and two on neighboring territories, all on or near the University of California campus, Berkeley. The two neighboring males, used in the observations recorded here, practically always uttered the ending warble. The four birds not using it were within the area embracing the five that did. Another observer told me that in Oakland, five miles from the campus, a towhee repeatedly ended its song with these warbling notes.

Doubtless a great many, though not all, singing males use this finch-like warble or trill as an ending for their songs. In view of its not uncommon occurrence, this finch-like warble, instead of being either a mimicry or a present-day evolution of a stereotyped song, may represent that part of an ancestral song which is gradually being lost. This may be correlated, as will be suggested later, with the possibility that the song itself has become restricted in function.

In the spring of 1937, prior to the actual nesting of Brown Towhees, permanently mated males were not singing, but unmated birds were. Previously, during the nesting season of 1936, I had been impressed by the lack of a territorial song in the Brown Towhees. True, a male on sentry duty near the nest might occasionally utter quiet

snatches which could be recognized as the towhee song, but there was never any of the loud, persistently uttered song so characteristic of unmated males.

In 1937, one of these unmated birds began singing as early as February 3 and kept it up persistently at all times of the day and even in a hard rain. At first he sang from an elevation, but as the nesting season approached, he also sang from the ground as he foraged. Three others which were first noticed singing on February 22 had probably begun earlier. Since the use of song appeared to be confined only to unmated males, it was believed that the introduction of a female to a singing, unmated male would silence its song, providing the two birds were in the same sexual rhythm.

EXPERIMENTS

Accordingly, on April 13, 1937, two experiments were made. Two captive birds which were thought to be females were introduced to two males which were singing in adjacent territories. The males had been singing from posts one hundred yards apart at Edwards Field on the University of California campus. It is not known whether they were birds-of-the-year or older birds; but one or both could have been yearlings since this habitat had only recently been created, and since it is unlikely that females of two established neighboring pairs would have been eliminated in one winter. The one at the east end of the field is hereafter referred to as the Allston male and the one at the west end as the Oxford male. These males were not banded.

The introduced birds, supposedly females, had been caught at a banding station on the campus, one nine, and one thirteen weeks previous to the above date. The females had been banded with colored celluloid bands and were marked additionally with white feathers glued on the upper side of the tail. Although they had been kept in the same cage together, they had shown no interest in each other; neither had they sung nor given the squeaking notes that mated birds utter. Since their wing measurements, ninety-three and ninety millimeters, respectively, were included in the tentative range of Brown Towhee females, it seemed plausible that this was their sex.

One of the birds to be released was taken directly to the Allston male at 7:30 a. m. This male, singing from the top of the fence, dropped to the ground at our approach; but when the captive was released, the singing male at once flew toward it and hopped in and out of the shrubbery into which the released bird had fled. Then for twenty minutes he sang lustily from the top of the fence; when disturbed by my walking toward him, he then flew to the top of the stadium to sing from there. About eight o'clock the supposed female flew out on the lawn where it at once began to forage. The male continued to sing, but with no apparent effect on the introduced bird. Presently the male flew down to the lawn and pursued the new bird, singing on the ground while it did so. The song had not been repressed by the advent of the introduced bird, for it continued unabated, with the characteristic closing warble. It should be noted, however, that when another male intrudes, singing is not the characteristic response of a male defending its territory.

Eventually, the resident bird pursued the new bird in a long, curving flight to the north edge of his territory where he paused to sing from the fence there. In a moment he flew to a cypress where the other had flown; here he chased the new bird up through the branches. The new bird then flew away and has not been seen since. Of course, the supposed female may have been a male and this may have been a territorial chase. Or, if the introduced bird were actually a female, it may not have been in the same sexual rhythm as the singing male, and hence did not elicit an adequate sexual reaction in him. (See Howard, An introduction to the study of bird behavior, 1929, p. 67; Allen, Auk, vol. 59, 1934, pp. 180-199.) In any event, the results of this experiment do not give a direct answer to the problem of what function the male song may have.

Meanwhile, the Oxford male was running beside a second unmarked bird near the boundary between its territory and that of the Allston male. After losing the bird which had been introduced to him, the Allston male sang a few songs from the fence and then seemed to become aware of the Oxford male and the strange bird with which it was running at the moment. He flew fifty yards, almost up to the other birds, and then, running to meet the Oxford male, began quivering his extended wings with great vigor. The Oxford male responded by equally vigorous quivering of extended wings. The unmarked bird which had been followed by the Allston male, and which was apparently a wandering female, stepped aside and soon flew over the fence and disappeared, but not until the two posturing males had come together in three successive violent clashes, in one of which they rose at least fifteen feet, striking with their beaks and clawing with their feet. The males then separated and returned each toward its singing post, at opposite ends of the field.

At 10:45 a. m., the second captive bird was released near the Oxford male which was singing and foraging alone on the ground. The released bird, appropriately marked with a white feather, flew above the male to the fence. The bird on the ground stopped singing, instantly alert, but it did not turn its head for a few seconds. Then it gave a few weak "*tseeps*" and sang faint songs as it hopped about a shrub on the ground; still it did not fly toward the other bird, although it quivered its wings once or twice. The introduced bird shortly dropped to the ground inside the fence and began to feed. It fed in one place, while the male hopped about it within a narrowing circle. The male suddenly flew at it once, but it jumped out of the way. The male then flew to the fence where he hopped, fluffed out, postured, and occasionally scratched his bill on the concrete top.

This bird began to sing loudly again about every ten seconds, alternating in utterance with the Allston male which was singing on his perch a hundred yards away. Each ended his song in the trill mentioned, but it was slightly different even in the two birds. This singing by the Oxford male in the presence of the new bird seemed in every way similar to that exhibited previously by the Allston male in the presence of the other supposed female. The Oxford male flew down about fifteen feet from the introduced bird, sang a little as he foraged and then suddenly flew at the female. There was a whirring of wings and a clicking sound as the two circled rapidly about the little cypress shrub in a sexual flight. After this they separated and foraged ten to fifteen feet apart. The male then sang occasional soft songs from the ground.

At 2:45 p. m., the same day, after the introduced female and the Oxford male had been together three and one-half hours, the male was quietly singing from the fence and the female was perched near-by. On the four succeeding days the two were together and the male was not observed to sing, but on the fifth day he had resumed singing. On the fifth day the female had apparently left of her own accord, for she was nowhere to be seen; not yet accustomed to the boundaries of the male's territory, she may have wandered beyond them. This absence of the female served the purpose of an experimental removal since the male, temporarily without his mate, resumed singing at 5:45 a. m. and was again noted singing at 2:00 p. m. The female had returned by the next day and the male song then ceased permanently. On May 12, one month after its introduction, the female was carrying straw to its nest site.

On the other hand, the Allston male, which served as a "control" bird, was still unmated. He sang vigorously for at least a full week afterward, at which time his songs began to decrease both in frequency and in completeness, as did those of other unattached males that had been singing earlier in the season. He remained in his territory

and a month later sang for at least twenty minutes at one time. His song then was incomplete, consisting of only the sharp staccato notes followed by the warbling notes; the regular towhee trill was omitted.

DISCUSSION

Howard (Territory in bird life, 1920, p. 13) early suggested that male songs serve as location notes for a female seeking a male which had a territory. Just how does the use of song in the Brown Towhee compare with that in other birds?

Of such a bird as the Reed Bunting, *Emberiza schoeniclus*, Howard says (An introduction to the study of bird behaviour, 1929, p. 35): "One would have expected that the coming of the female would have had a marked effect on the male's previous routine of behaviour. But his routine is not affected save in one important particular—the song Instead of singing with renewed vigor, he gives it up and sings but little—perhaps stops—while his neighbor, still mateless, continues." These remarks concerning some passerine birds in England, apply precisely to the Brown Towhee of California.

A similar situation exists in the Western Mockingbird. Of its advertisement song, Michener and Michener (Condor, vol. 37, 1935, p. 136) write: "We suspect that this may be, in reality, two songs, one for the purpose of advertising himself to any female that may come within hearing distance, and another to advise all males in the neighborhood that he is the owner and is ready to defend his territory. On the arrival of the mate these songs almost entirely cease." It may develop that the song of the Brown Towhee has such a dual function for birds-of-the-year, but in the present experiments mate-getting was evidently the chief need served by the singing of the unmated birds.

If the male mockingbird does not succeed in getting a mate, "his advertisement song continues with increasing fervor until late in the season when, having failed, his song ceases and he leaves his territory." It may be that the Brown Towhees differ, since the unmated Allston male practically ceased singing and yet remained in his territory.

On the other hand, song in some birds appears to have a wider use than that of securing a mate. The male Mississippi Song Sparrow sings while the female is brooding on the nest. (See Nice, Bird-Banding, vol. 1, 1930, p. 179.) The Nuttall White-crowned Sparrow, a permanently resident species, sings loudly and defends its territory during the breeding season. Song is also latent with the females (Blanchard, Condor, vol. 38, 1936, p. 147). Erickson (Univ. Calif. Publ. Zool., vol. 42, 1938, p. 269) demonstrated that the Intermediate Wren-tit proclaimed its territory by song long after it obtained a mate. Since the Brown Towhee sings only when unmated, its song is evidently of more limited use than the songs of these other species.

The situation in the Brown Towhee is of particular interest because it is one of those birds in which territoriality is of permanent duration. It is a resident bird in which there appears to be no tendency toward flocking; pairs, once mated, retain their territory indefinitely. However, no element of song enters into the territorial defense, at least in permanently established pairs, whereas in the wren-tit, for example, which also maintains permanent territories, song is used to announce the territory.

In Brown Towhees, the fact that the present-day function of the song is seemingly limited to mate-getting, may perhaps be correlated with its open type of habitat. Since the niche of the Brown Towhee includes open grassy areas where it may both see and be seen, a continuous advertisement of its presence by vocal utterance would seem to be unnecessary. If the territorial use of song were ever part of the ancestral behavior of the genus, it would not have possessed survival value in the evolving Brown

Towhee and would consequently have been eliminated. By contrast, in the Spotted Towhee, in which the habitat is chiefly brushy, the attached males sing throughout the nesting season. Therefore, in the Spotted Towhee, the utility of territorial song may account for its retention.

It is suggested that in many birds, the degree or manner in which song is used may be correlated with the type of habitat and perhaps with the social organization as well. Thus, other things being equal, birds living in dense habitats tend to have territorial song, while those such as the Brown Towhee, living in relatively open ground, tend to have the song restricted to mate-getting.

With regard to population counts, it becomes clear that in Brown Towhees counting of songs cannot be used as a census method since the use of song is restricted largely if not entirely to unmated males.

The experiments cited herein appear to have an indirect bearing on the problem of homing. The captive birds, which were both supposedly females, had been caught midway between the outdoor cages where they were held for the several weeks of their captivity, and the place of release at Edwards Field. The first towhee released, that one which soon left the field, did not reappear at either its place of origin or at its place of capture, so far as is known. However, the second bird stayed at its place of release. Had it been released at its place of capture, the awakening urge to find a mate would possibly have sent it away from home. It cannot be said therefore, that it had no homing sense or that it had been lost through captivity.

SUMMARY

The introduction of a female at the post of a singing unmated male Brown Towhee led within a very short time to the silencing of the male song, whereas the neighboring unmated male which served as the control male, continued to sing. Since permanently mated males do not sing, it would seem that the male song of the Brown Towhee has as its chief purpose the attraction and securing of a suitable mate.

With regard to the content of the song of Brown Towhees, the use of a finch-like warble as an ending appears to be moderately common, but not invariable. The fact that it does not occur in the songs of some of the birds, however, indicates a tendency toward curtailment and probable eventual loss of the warble.

Remote ancestors of the Brown Towhee may have had a territorial song which continued through the nesting season. The Brown Towhee, derived from this ancestral stock, filled a habitat niche which was relatively open and in which sight advertisement was sufficient. The territorial function of song therefore has disappeared.

Museum of Vertebrate Zoology, Berkeley, California, August 26, 1937.

FRANK STEPHENS, PIONEER

WITH TWO ILLUSTRATIONS

By LAURENCE M. HUEY

Frank Stephens, who may well be termed one of the few truly pioneer naturalists of the Southwest, was born in Livingston County, New York, April 2, 1849, and he died in his eighty-ninth year at San Diego, California, October 5, 1937. His autobiography, written at the pressing request of the editor, which appeared in *The Condor* in 1918 (vol. 20, pp. 164-166), reflected his characteristic modesty in the brevity of its treatment of his really full and eventful life up to the date of its publication. The facts it contained will not be repeated here. The purpose of the present article is to

furnish some personal observations based upon nearly thirty years of close association with a man whose type is now virtually extinct, and also to record some information as to his ornithological experiences derived from the bird and mammal collections of the San Diego Society of Natural History.

I first met Stephens when I was in my early teens, and I vividly recall that I was absent from school that day—absent without leave! It was mid-morning on Tuesday, May 26, 1908, when, after a 10-mile tramp, with my dog, I broke through a large mustard thicket into his camp on the Sweetwater River near Bonita in San Diego County. I had learned its whereabouts from William S. Wright, my manual training teacher in the San Diego city schools and also an enthusiastic entomologist, who had frequently spoken to me of Stephens.

I have often pondered over the impression Stephens must have had of that moment of meeting—the sight of a brown-spotted pointer dog and a chubby boy in a hunting coat much too big for him (his father's, in fact), shouldering a large double-barreled shotgun, suddenly framed in the doorway of his tent! If I had any fears of an unpleasant reception, they were dissipated by his cheery "Hello, come in." The invitation was into a wonderland; for scattered about on two tables and a cot were several trays of bird and mammal specimens, the first I had ever seen. He told me that I might handle the dried ones and explained to me the proper way to pick up bird and mammal skins. This friendliness on the part of my newly made acquaintance immediately banished all my restraint and I burst forth with a multitude of questions. Such was my first meeting with this grand man and I recount it as typical of his kindly attitude toward all.

Two days later found us again together, this time in the field in search of the elusive Farallon Rail. Stephens was then collecting for the Museum of Vertebrate Zoology, and since I had been successful in adding several sets of this rare rail to my egg collection, he thought I could be of assistance to him. We had worked the marsh for hours when, by a stroke of good luck, a Farallon Rail flushed by the dog was shot by Stephens at close range with a light load. I had expected a loud report, but it was only a tiny puff of smoke, with a crack hardly louder than that of a small rifle. That was my first introduction to an auxiliary gun barrel. When Stephens published his "Notes on the California Black Rail" (*Condor*, vol. 11, 1909, pp. 47-49), I was the anonymous "lad" mentioned in the story. It was decided to omit my name because I had no collector's permit. This situation was later remedied by Stephens, who through personal effort helped me to secure a limited permit from the State Fish and Game Commission.

The day of the rail hunt will always be memorable to me; for that afternoon as we rested on the salt marsh I asked him if it was possible for a person to make a living collecting birds and mammals. His reply was affirmative, but he said the monetary returns were small. That was enough for me; he said, "it can be done." The die was cast and Frank Stephens was now my guiding star.

That fall I bought a bicycle and this made it easier for me to visit the Stephenses; for Mrs. Stephens, who was her husband's collaborator in much of his natural history work, proved as interesting to listen to in her fields, conchology and paleontology, as he was in his. It was during these visits that Stephens began telling me occasional stories of his collecting experiences, which I treasured in my memory. One day we were looking at a tray of owls when he picked up a Pigmy Owl. Turning it over he showed me a great hole in the back of the specimen.

"See here," he said, "I shot that bird with a 50 caliber Henry rifle. It was the first Pigmy Owl I had ever seen, and a very dangerous chance I took to get it, too, for the Apaches had raided a ranch next to mine, only five miles away, and we were hurrying

to the shelter of Fort Bayard. In all probability the Indians heard the shot, but they never caught up with us, nor did they attack the fort. No doubt the band of savages was small and was pillaging only isolated ranches where they would murder the rancher and drive off his stock, never attacking organized groups or the U. S. soldiers." Such was the story of the Pigmy Owl, collected with a gun loaded for men, not for birds!



Fig. 31. Frank Stephens, at Cooper Ornithological Club Annual Meeting, San Diego, California, March 30, 1934.

It is now no. 405 in the collection of the San Diego Society of Natural History and was obtained on July 20, 1876, at Fort Bayard, New Mexico. The label bears the notation, "Shot with a rifle."

Again, Stephens related the capture of a large Wild Turkey gobbler, now no. 3 in the collection. It was taken on January 16, 1881. Said he, "I was just leaving my cabin, which was situated about a mile up the canyon west of Galeyville (now known as Paradise) on the east slope of the Chiricahua Mountains, Arizona, to cut a load of wood. There was a light fall of snow on the ground and I had my axe and my rifle.

In that country, in those days, no one ever left his cabin without his rifle. I was only a few rods from the cabin when two large turkeys ran across an opening in the trees just ahead of me. I was a pretty good rifle shot then and I got both of them. Mrs. Stephens, hearing the two reports, thought someone had shot me and came running out of the cabin. The joke was on her though," he continued, with a chuckle, "and as a penalty she carried both of the birds back to the cabin. They were big fellows, too!"

During November, 1908, Stephens camped a couple of weeks on the U. S.-Mexican boundary near Monument No. 258, trapping for the Pacific Pocket Mouse, which was then excessively rare in collections. I had a part-time job, but with my bicycle I was able to ride down to his camp after work and spend several nights with him. This was the first time I had ever seen a field collector at work. I well remember the first line of rat and mouse traps we set together. In laying the line over varied terrain, he explained to me the associational habits of small mammals and birds, how some preferred soft ground, brush, grasses, or tules and some rocky and open ground, dry or moist. The next morning the truth of his statement was well illustrated by the character of the catch.

One day two coyotes had been caught during the night and, as we sat just outside the tent door fleshing the skins, I chanced to look up into the sky and saw a Condor flying over, accompanied by about a score of Turkey Vultures. I pointed it out to him and he told me to put the two coyote carcasses out into the open as quickly as possible, while he secured his rifle. We then hid quietly for an hour under a sumach bush, hoping the Condor might come down, but it was never seen again.

It was while he was at this camp that Stephens taught me to make study skins. When I think of the patience he displayed during those skinning lessons and the mess I made of my first specimens, I marvel at his tolerance. For tolerance is one of many virtues with which broad-hearted Frank Stephens was blessed in abundance.

The following winter, Stephens had a commission to obtain a series of topotypical Large-billed Sparrows. He had spent a couple of afternoons on the San Diegan salt marshes with nominal success and offered me a dime each for a dozen or more of the birds. The deal was on, and I hurried home for my .22. Stephens had given me a box of shot shells that would fit my gun, and I knew of a small salt marsh, within the city limits of San Diego, where numbers of Large-billed Sparrows came to roost each evening. Within half an hour that evening I had fifteen of the sparrows and, after stuffing their beaks with cotton and wrapping them in paper, I rode back to the Stephens residence. I received a dollar and a half for my birds, the easiest money I had ever earned; and the determination of the young collector to follow natural history as a career received considerable impetus. This money was later used by me in partial payment of dues in the Cooper Ornithological Club, in which my name had been proposed by Stephens.

During the next few years we saw much of each other. In 1912 and 1913 we made a number of trips together to Los Coronados Islands in Lower California, famous resort of sea birds. One occasion, in particular, I recall, when during May, 1913, the south island was the gathering place for five southern California ornithologists. A. J. van Rossem and A. Brazier Howell were camping and collecting there, and Frank Stephens and I were spending a week-end with them. On the last day of our stay a fishing boat came chugging into the cove bringing Donald R. Dickey. It was his first meeting with Frank Stephens.

Frank Stephens always loved the desert, in fact his personality seemed always to personify the desert—his simple mien, his resolute determination to complete any task he undertook, his placid disposition, his honest reliability and truthfulness. It is no

wonder that about 1910 he took up a desert claim, in La Puerta Valley in eastern San Diego County. During the next few years he used his spare time to make collections of the various birds and mammals he found about the place. These specimens, like most of those he had taken during his pioneer days, were sold to help provide living expenses. William Brewster, C. Hart Merriam, C. K. Worthen, University of California, and Donald R. Dickey were some of the more notable purchasers. In 1910, however, he donated his main collection of some 2000 birds and mammals to the San Diego Society of Natural History, and upon the foundation of this gift has been built all the Society's subsequent activity in the field of vertebrate research.

A story Stephens once related about a raven collected at La Puerta seems worthy of repeating. He had been showing me some recently acquired skins and doubtless noticed my puzzled expression at his evident satisfaction in the possession of that particular raven. Then he explained: "A pair of Ravens had settled in the valley when I started to plant a few cleared acres and they commenced to forage on my crop. I tried many times to collect them but, after I had fired several shots, they got so wild that approach was impossible. Finally, one late spring day, about noon when the sun was quite warm [it must have been 100 degrees or more, for Stephens never said "warm" until that temperature was reached], I was in my tent resting on my cot when I saw the shadow of a raven drift across the canvas roof. A moment later the wary bird had alighted on the ridgepole. I shot right through the tent roof and got him with my 32 auxiliary!" The point that had so pleased him was the paradox of killing this raven with his lightest collecting gun, after trying all winter and spring to shoot it with his heaviest charge.

Stephens' ranch at La Puerta was destined, in the years that followed, to be the focal point for field adventures of a number of budding young naturalists, and he never failed to foster their enthusiasm either by being a member of their party or by entertaining them if he happened to be there when they arrived.

The close of the Panama-California Exposition at San Diego, which during 1915 and 1916 had celebrated the opening of the Panama Canal, started a new era in the lives of Mr. and Mrs. Stephens. The San Diego Society of Natural History obtained one of the smaller exposition buildings in 1917, and its collections and library were moved into it. An apartment was provided in the building, where Mr. and Mrs. Stephens lived, and they began giving their entire time to the work of developing a public natural history museum for San Diego. Stephens' constant presence about the museum gave the group of youngsters greater opportunity to converse with him and it was during the next five or six years that the largest number felt his influence.

The post-war period brought great activity into the museum; a grant of money was made by Miss Ellen B. Scripps, and the San Diego Society of Natural History's collections and rapidly growing exhibits were in 1920 moved to a larger building nearer the center of Balboa Park. In March, 1923, the writer was employed by the Society. Stephens and I were now both working in the same organization, a happy situation which continued until he retired in 1934, with the title of Curator Emeritus, at the age of 85.

In the last ten years, we have been companions on three trips into northern Lower California, Mexico, one to San Felipe, on the Gulf of California, one into the Sierra Juárez, and one to Punta Banda, just south of Ensenada. The month we spent in the Sierra Juárez was the longest single period we had ever spent together afield, and in spite of his being 79 years of age he could trap mammals and skin during the daylight hours; but the years had dimmed his sight and he naturally tired more easily than the younger members of the party, so he was content to stoke the camp fire during the evening sessions of the work. While we made up skins he often related tales of his early days.

As a camp companion I believe Frank Stephens never had a superior; there was always a cheery word and a willing hand for any task great or small. His tricks of camplore seemed inexhaustible. If there was a simpler means or a short cut to any outdoor work, or a way to do a better job, Frank Stephens knew it. These things he had learned from his pioneering experiences, from a long life of contact with his fellow man, and from matching his wits against the wiles of nature.

As evidence of the high regard in which Stephens was held by his fellow scientists, we know that at least fourteen new species or subspecies were named in his honor, three birds, six mammals, one reptile, one plant, two insects, and one mollusk. He joined the American Ornithologists' Union as an associate in 1883 and was honored by membership in 1901. He joined the Cooper Ornithological Club in 1894 and was made an honorary member in 1912. He was designated a Fellow of the American Association for the Advancement of Science in 1926, and prior to 1923 was elected both a Patron and a Fellow of the San Diego Society of Natural History. He was a charter member of the Zoological Society of San Diego and was one of the five founders of San Diego's now famous zoo. He was also a member of the Biological Society of Washington and a charter member of the American Society of Mammalogists.

As nearly as I have been able to determine from the literature, Stephens was the collector of the types of 45 animals—14 birds, 26 mammals and 5 insects. The birds, with some of the data, are listed herewith.

BIRD TYPES COLLECTED BY FRANK STEPHENS

Name	Year	Locality	Describer	Reference
<i>Poliioptila melanura californica</i>	1878	Riverside, Calif.	Brewster	Bull. Nutt. Orn. Club, 1881
<i>Phainopepla nitens lepida</i>	1878	Riverside, Calif.	Van Tyne	Occas. Papers, Boston Soc. Nat. Hist., 1925
<i>Vireo vicinior californicus</i>	1878-80?	Riverside, Calif.	Stephens	Auk, 1900
<i>Callipepla squamata pallida</i>	1880	Rio San Pedro, Ariz.	Brewster	Bull. Nutt. Orn. Club, 1881
<i>Anrostomus vociferus arizonae</i>	1880	Chiricahua Mts., Ariz.	Brewster	Bull. Nutt. Orn. Club, 1881
<i>Vireo huttoni stephensi</i>	1881	Chiricahua Mts., Ariz.	Brewster	Bull. Nutt. Orn. Club, 1882
<i>Penthestes sclateri eidos</i>	1881	Chiricahua Mts., Ariz.	Peters	Proc. New England Zool. Club, 1927
<i>Sialia sialis fulva</i>	1884	Santa Rita Mts., Ariz.	Brewster	Auk, 1885
<i>Colinus ridgwayi</i>	1884	Sasabe, Sonora, Mex.	Brewster	Auk, 1885
<i>Rallus obsoletus levipes</i>	1886	Orange Co., Calif.	Bangs	Proc. New England Zool. Club, 1899
<i>Callipepla gambeli deserticola</i>	1890	Riverside Co., Calif.	Stephens	Auk, 1895
<i>Speotyto cunicularia obscura</i>	1894	Lake Co., Calif.	Stephens	Auk, 1895
<i>Buteo borealis alascensis</i>	1907	Glacier Bay, Alaska	Grinnell	Univ. Calif. Publ. Zool., 1909
<i>Lagopus lagopus alexandrac</i>	1907	Baranof Is., Alaska	Grinnell	Univ. Calif. Publ. Zool., 1909

The localities above, and those attached to his mammal types, give indication of the more important trips Stephens made during the most active part of his life, and the catalogue of the collection he presented to the San Diego Society of Natural History

throws still additional light on his travels. A pair of prairie chickens taken by Frank Stephens at Russell, Kansas, during March, 1871, are the earliest of his dated specimens in the collection, and no doubt were among the first birds he prepared as study skins. His subsequent migration westward to Campo, San Diego County, California, during the years 1875-1876 is well marked by specimens collected along the way.

During the twenty-five years following, Stephens made numerous trips into the western parts of the Colorado Desert, and many specimens mark his routes. Some of the localities, such as Pelican Lake, Duck Lake and Cameron Lake, have been so completely changed by human occupation that the specimens he secured there are now historic. An occasional specimen stands out as worthy of mention. For instance, a California Cuckoo (*Coccyzus americanus occidentalis*) taken at Fort Bayard, New Mexico, June 25, 1876, probably represents the first specimen of this species ever collected in New Mexico; and a pair of Blue-winged Teal (*Querquedula discors*) taken at Palm Springs, then known as Agua Caliente, Riverside County, California, on March 10, 1886, is still an exceptional record, as is also a female specimen of American Golden-eye taken at Black Mountain, northeastern Lower California, Mexico, on December 4, 1896.

There are three trips represented by specimens in the collection that were to points distant from southern California and that were not mentioned by Stephens in his writings. One of these was to western Washington in January, 1884, when a few specimens were secured, the most important of which are two Bob-white Quail taken on Whidby Island in Puget Sound. A note in the catalogue states: "These birds were introduced on the island and the two specimens are the third or fourth generation." If bob-whites from this same stock are still extant on Whidby Island, this pair might afford interest in comparison with some recently taken birds.

He returned to visit his old home in the central states during the late summer and fall of 1887, and on his way east stopped off at Flagstaff, Arizona, where he made a small collection from the vicinity of San Francisco Mountain. A number of specimens in the collection were taken on this trip in Iowa, Illinois, Missouri and Kansas, during the months of August, September and October, 1887.

The most important trip ever made by Frank Stephens on his own account was primarily in the interest of his book on California Mammals, which was published in 1906 after many years of preparation. He had engaged the services of William J. Fenn, an artist, to draw illustrations for the work, and he and Fenn started together from Witch Creek, San Diego County, California, in February, 1894, using a light wagon drawn by two horses. The route of the journey was up the coast to the San Francisco Bay region, thence north into Mendocino County. Turning eastward, they crossed the Sacramento Valley at Colusa and followed a route from Oroville to Buck's Ranch, then went over the Sierra Nevada to Susanville. From this point they traveled northward to Goose Lake and the Warner Mountains, in the extreme northeastern part of California. This was the apex of the trip and was reached during late July. The return journey was made along the eastern slopes of the Sierra Nevada until the vicinity of Walker Pass was reached. Here they turned westward and crossed the Sierra again, entering the extreme southern part of the San Joaquin Valley. The last leg of the trip was made via old Fort Tejon and the western arm of the Mohave Desert, the travelers remaining on the desert slope of the mountains until Cajon Pass was reached. They then continued south by way of Elsinore and Warner's Valley to Witch Creek, where they arrived during the first part of November. Stephens often told me of his experiences on this trip, and years later I followed his trail from Oroville to the Warner Mountains, camping in places he had designated as good collecting spots.

One feature of this long trip was the presence of a pet cat belonging to Fenn, a subject Stephens never failed to mention when talking about this journey. It seems that this cat was the cherished possession of his friend and he would not part with it in spite



Fig. 32. Frank Stephens (at right), and A. W. Anthony tossing flapjack, in camp near Jolon, Monterey County, California, October 24, 1929.

of the fact that it was of no use on a collecting trip. "The critter was into everything," said Stephens, "but only once did it catch me unaware of its presence. It had just finished eating the body off of the only Three-toed Woodpecker I took on the trip, when I caught it. My only regret was that I hadn't poisoned the skin sufficiently to prove fatal to the cat!" The head of this bird is still in the collection.

Stephens was not a prolific writer, any more than he was a highly technical taxonomist. His forte was as an out-of-door naturalist, with a versatility that was amazing. Nevertheless I have been able to find fifty-five published items from his pen, and there may be more that have escaped my search. This list is appended.

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THE WHITE-THROATED SPARROW IN WESTERN NORTH AMERICA

WITH ONE ILLUSTRATION

By MARGARET W. WYTHE

From time to time various birds whose regular distribution is east of the Rocky Mountain divide are observed as so-called accidental stragglers far out of their normal range. Of such birds, the White-throated Sparrow (*Zonotrichia albicollis*) in western North America, and more particularly in California in increasing numbers, provides suggestive evidence bearing on the problem of distribution.

For the present study, in addition to published records and accounts of *Zonotrichia albicollis*, information has been received through correspondence. Especially helpful is that for Nebraska, furnished by Prof. Myron H. Swenk. Acknowledgment is due also to certain persons for permitting me to use the following records which otherwise would have been published by themselves: Mr. C. I. Clay, record of a bird taken at Eureka, Humboldt Co., Calif., November 29, 1934; the late Mrs. Harriet N. Blake, of a banded bird, no. 34-16915, at Berkeley, Alameda Co., Calif., December 1, 1935; Mr. D. E. Danby, of a bird banded by Mrs. L. B. Payne, no. 34-93660, at Santa Cruz, Santa Cruz Co., Calif., January 24, 1936; and Mrs. Otis S. Smith, of banded birds, nos. A-182000 and F-119333, at San Anselmo, Marin Co., Calif., from 1933 to 1935. Mr. L. Morgan Boyers furnished data pertaining to three California-taken specimens now in the Natural History Museum, Stanford University.

The majority of the records which form the basis of this paper present several limitations which make impossible more than an incomplete picture. The human factor is responsible for this, first, through collection of the unusual bird, thereby precluding any future evidence for that bird, of a nature here needed; second, localities of observation appear concentrated in certain sections, because more bird observers who publish their findings happen to live in population centers, and thus true conditions with regard to the birds are not indicated.

The 100th meridian sets, in general, the boundary between common and uncommon occurrence in the distribution of *Zonotrichia albicollis* within the United States. In the West, the species has been noted so rarely as to cause special comment or published record. In this western area, most of the record stations appear in two distinct, separate regions, the Rocky Mountain region, and the Pacific coast region. For the intervening Great Basin region, probably because of few observers, but one record is at hand: Cottonwood Creek, near Mt. Grant, Mineral Co., Nevada, July 15, 1934. This single out-of-season record is not made use of in this study.

ZONOTRICHIA ALBICOLLIS IN ROCKY MOUNTAIN REGION

Locality	County	Spring	Fall
Montana			
Great Falls	Cascade	May 8, 12	Sept. 18, 24
Gallatin Valley	Gallatin	June 8	_____
Fallon	Custer	_____	Oct. 5
Fallon Creek		_____	Sept. 6
Miles City		_____	Sept. 26, 30
Fort Keogh		_____	Sept. 22
South Dakota			
_____	Harding	_____	Early Sept.
Wyoming			
Douglas	Converse	_____	Oct. 8
Torrington	Goshen	May 13	_____
Nebraska			
Mitchell (west of)	Scotts Bluff	April 21, May 29	_____
Antioch	Sheridan	April 29	_____
Oshkosh	Garden	_____	_____
Simeon (west of)	Cherry	_____	_____
Stapleton	Logan	common migrant	
Colorado			
Clear Creek Valley	Logan	_____	Nov. 2
Yuma	Yuma	May 3	_____
Coal Creek, 8 miles			
W. Denver	Adams	_____	Oct. 5
Pueblo	Pueblo	_____	Oct. 4, 18, 24, and to Nov. 4
Idaho			
Nampa	Ada	_____	Nov. 2
New Mexico			
Elephant Butte	Sierra	_____	Nov. 23, Dec. 9

Within the Rocky Mountain region, including the states of Montana, South Dakota, Nebraska, Wyoming, Colorado and Idaho, the White-throated Sparrow has been located and recorded at times since 1886, on various dates from September 6 to November 4,

and from April 21 to June 8. All of these dates, with the exception of June 8, coincide with average migration dates of the species farther east. The fact that no mid-winter dates are represented in this region points to the probability that the few birds that drift through are migrants only, passing south, thus accounting for wintering records in Texas. Also, they account for the two individuals observed at Elephant Butte, New Mexico, on November 23 and December 9.

The breeding metropolis of *Zonotrichia albicollis* nearest to the Rocky Mountain region of the United States lies in the vicinity of Edmonton, Alberta, where to sum up published statements, it is a "common summer resident." A recognized, well-defined migration route passes through Alberta and crosses the northwestern part of Montana. Here the pathway divides, one branch turning southwest and the other turning southeast. Along this latter route it is conceivable that Rocky Mountain migrant White-throated Sparrows travel into Texas for the winter. It is likewise conceivable that by traversing the former branch, the two vagrants listed somehow drifted into New Mexico.

ZONOTRICHIA ALBICOLLIS IN CALIFORNIAN PORTION OF PACIFIC COAST REGION

Locality	County	Date	Circumstance
3 mi. SE Standish	Lassen	Feb. 20, 1936	Observed
Adams	Del Norte	Nov. 4, 1915	Taken
Eureka	Humboldt	Nov. 29, 1934	Taken
Santa Rosa	Sonoma	Oct. 13, 1898	Taken
		Nov. 23, 1898	Taken
		Nov. 23, 1898	Taken
Sonoma	Sonoma	Oct. 27, 1896	Taken
Petaluma	Sonoma	March 16, 1903	Taken
San Geronimo	Marin	Jan. 26, 1901	Taken
		Jan. 26, 1901	Another seen
		Feb., 1905	Taken
		Dec. 11, 1907	Taken
		Dec. 11, 1907	Another seen
		Oct. 21, 1933	Seen
Woodacre	Marin	Oct. 18, 1928	Banded
		Nov. 18, 1933	Banded
		Nov. 25, 1933	Banded
San Anselmo	Marin	Nov. 7, 1931-1932	Seen
		Mar. 28, 1933	Banded
		Nov. 1, 1933	Same bird seen
		Fall, 1934-Mar. 2, 1935	Same bird seen
		Nov. 19, 1933	Seen
		Nov. 26, 1933	Banded
		Nov. 26, 1933-	
		Feb. 25, 1934	Same bird seen
		Apr. 11, 1934	Same bird seen
San Rafael	Marin	Winter, 1931	Banded
Berkeley	Alameda	Jan. 28-Feb. 15, 1915	Seen
		Dec. 17, 1920	Seen
		Jan. 7-9, 1921	Seen
		Jan. 25, 1922	Banded
		Nov. 29, 1922-	
		Apr. 4, 1923	Same bird returned
		Winter, 1922	Banded
		Winter, 1924-May 2, 1925	Seen
		Nov. 13, 1927	Banded
		Nov. 15, 1927	Same bird repeated
		Dec. 4, 1928	Taken

		Dec. 16, 1928	Seen
		Dec. 13, 1928	Taken
		Jan. 10, 1929	Banded
		Oct. 15, 1929	Banded
		Oct. 1930-Feb. 1931	Seen
		Nov. 19, 1931	Banded
		{ Nov. 23, 1931	Banded
		{ Dec. 7, 1931-	
		{ Jan. 9, 1932	Same bird seen
		Jan. 11-25, 1935	Seen
		{ Dec. 1, 1935	Banded
		{ Dec. 1, 1935-	
		{ Jan. 16, 1936	Same bird seen
Oakland	Alameda	Winter, 1933	Banded
		Apr. 25, 1936	Seen
Hayward	Alameda	Jan. 2-14, 1889	Seen
		{ Nov. 18, 1889	Seen
		{ Nov. 20, 1889	Same bird taken
San Francisco	San Francisco	Dec. 23, 1888	Taken
		May 5, 1929	Seen
Redwood City	San Mateo	May 10, 1914	Taken
		Nov. 2, 1919	Taken
Fair Oaks	San Mateo	Oct. 6, 1895	Taken
Pescadero	San Mateo	Dec. 29, 1900	Taken
Stanford University	Santa Clara	Dec. 26, 1923	Banded
San Jose	Santa Clara	Nov. 5, 1928	Taken
Santa Cruz	Santa Cruz	Jan. 1, 1894	Taken
		Jan. 1, 1894	Another seen
		Jan. 24, 1936	Banded
Near Stockton	San Joaquin	Apr. 22, 1892	Taken
Modesto	Stanislaus	Jan. 1, 1934	Banded
Le Grand	Merced	Feb. 28, 1936	Banded
Tule River bottom, 10 mi. E Porterville	Tulare	Oct. 12, 1930	Taken
Near Mission Santa Ynez	Santa Barbara	Dec. 6, 1891	Taken
Santa Barbara	Santa Barbara	Fall, 1915	Seen
		Dec. 8, 1915	Seen
		Winter, 1930	Seen
Eagle Rock	Los Angeles	Jan. 6, 1929	Banded
Pasadena		Nov. 21, 1894	Taken
Hollywood		Nov. 13, 1922	Seen
Los Angeles		Feb. 25, 1897	Taken
		Nov. 1918-Feb. 1919	Seen
Los Angeles, Lincoln Heights		Apr. 10, 1924	Banded
Buena Park	Orange	Mar. 19-Apr. 10, 1921	Seen
		Jan. 15-Mar. 31, 1923	Seen
Near Laguna	Orange	Jan. 12, 1923	Seen
		Jan. 12, 1923	Another seen

Within the Pacific coast region of the United States a different situation is noted. In order to draw conclusions as to the status of *Zonotrichia albicollis* in California a brief summary is in order. Until 1915, the White-throated Sparrow was spoken of as "accidental," "straggler," or "casual visitant" in California. Then, on the basis of a summary of records to that date, in the Distributional List of the Birds of California (J. Grinnell, Pacific Coast Avifauna No. 11, 1915) the status of *Zonotrichia albicollis* was summed up as: "Rare winter visitant west of the Sierras: 17 specimens have been recorded as taken."

The first specimen recorded from California was taken in 1888. To the end of 1936—a forty-nine year period—a total of 72 individuals has been recorded. Of these, 25 were taken as specimens, 21 have come to notice through banding activities, and the remaining 26 have been dependable sight observations. Four of the banded birds repeated in traps the same season, while two birds returned to the banding locality the succeeding season, remaining throughout the winter.

Analysis of California records brings out several interesting facts. Seasonally, the earliest published fall date is October 6, and the latest spring date, May 10. First observations of individual White-throats have been made in each month from October to May, giving the following totals: 8 for October; 9 for November; 12 for December; 16 for January; 5 for February; 3 for March; 2 for May. In other words, more birds have come to notice in California during mid-winter than during months of either fall or spring migration. The longest consecutive period of observance of one bird is from November 29 to April 4; and 20 individuals have been observed over briefer continuous periods. In most years but a single bird has been recorded; but in four different years two were recorded; three in each of three years; four in each of five different years; five individuals were observed in 1928; and in 1933 and in 1936 six birds were observed. To what extent the human factor of increasing numbers of bird observers has to do with increased number of records is not known, but the point to be considered is that if as many as six birds are brought to notice in a given season, the probabilities are that the numbers of *unobserved* birds are correspondingly large. One writer has said that, if it were possible to carry on long-continued comprehensive observations, "some birds now known from but a few records, or even as accidentals, would come to be considered of frequent, though not necessarily regular, occurrence. With the White-throated Sparrow it is not impossible that a thousand of the birds have wintered in California in certain years" (J. Grinnell, *Auk*, vol. 39, 1922, p. 376). On the basis of the number of records of the White-throated Sparrow in California to the end of 1936, it now seems plausible to assume that "rare" and "casual" may be removed from the statement of status for *Zonotrichia albicollis* within this State; evidence points to its being essentially a *winter visitant*.

Thirty-two localities in California are reported for observance of White-throated Sparrows in the forty-nine year period of occurrences, through 1936. The greatest number lie in the San Francisco Bay region, while the Los Angeles region has the second largest number (see fig. 33). It is not impossible that these two coastal sections *do* hold habitat-preferences for this species, but warning of the human factor is again mentioned—a greater number of reporting observers live in these two regions.

With this accumulation of occurrences in mind, questions naturally arise as to source of supply, and routes of entrance into this western area, far removed from the normal range of the species. The same nesting area in Alberta, Canada, from which the Rocky Mountain states derive their "accidental" migrants, is the nearest available source of California's wintering contingent of White-throats. That this is entirely possible can be seen by referring to the map of flight-ways as delineated by students of migration. From the north, southwest across Alberta, the great highway of travel which crosses northwestern Montana, swings west along the Columbia River, and, turning abruptly south in Oregon, traverses the length of California through the great Sacramento and San Joaquin valleys. This route thus provides a normal line of entrance of White-throated Sparrows into California, from the western portion of the breeding range of this so-called *eastern* species.

ZONOTRICHIA ALBICOLLIS IN THE PACIFIC NORTHWEST

Locality	Spring	Fall
British Columbia		
Kispiox Valley, 23 mi. N Hazelton	May 11, 14	
Vanderhoof	June 21, July 15	Aug. 15
Bowron Lake		
Indianpoint Lake		Sept. 12, Oct. 5, 7
Saanich (dist.), Vancouver Island		Oct. 6
Washington		
Sherlock, Thurston County		Oct. 13
Oregon		
Mulino, Clackamas County	Apr. 27	
Blaine, Tillamook County		Oct. 25

While the present scarcity of records of appearance of *Zonotrichia albicollis* in the Pacific northwest (see fig. 33) is undoubtedly partly due to paucity of observers in the right localities at the right seasons, it is probably correct to assume that the White-throat is less common here than in California. All but one of the occurrences listed are found to be fall or spring dates, normally within seasonal migration. But whether the individuals observed can be definitely termed "migrant" or "winter-visitant" must for the present remain an open question.

As with migrants and winter visitants at all other western points visited, the nearest logical source of supply is the breeding area in Alberta, Canada. The two Oregon records, and, possibly, the one Washington record, might well represent individuals that had drifted to these points after traveling along the major west-bound flight line from Canada, which turns west down the Columbia River Valley. However, since there are other records for farther north, in British Columbia, another hypothesis is suggested.

Turning first to the most outstanding British Columbia record: It is for *summer*, with June-July dates, and indicates a nesting pair (Brooks and Swarth, Pacific Coast Avifauna No. 17, 1925, p. 94). In an endeavor to explain how *Zonotrichia albicollis* is found here in summer there are two points to be considered: (1) the summer range of the species from its center of abundance around Edmonton, Alberta, north along the Mackenzie River; (2) the physiography of this northwestern Rocky Mountain region. North of Edmonton vicinity, summer stations of record dot the Mackenzie River Valley in lessening numbers clear to Lower Ramparts at the river's delta, and dates of appearance are from May 1 to September 3. The inference drawn from extremes of dates is that early and late dates *may* pertain to birds-of-passage toward summer or toward winter grounds. That summer vagrants from here *might* cross the Rockies toward the west may be inferred by an inspection of the physiography of this northwest region.

Yellowhead Pass is an accepted passage-way to the western side of the Rocky Mountains in the southern half of British Columbia. North of this Pass region, whence as yet practically nothing ornithological is known, physiographically the situation is summed up in the following quotations: "Between the Athabaska and Peace rivers not much is known of the character of the Rocky mountains except that they are very rugged and high and there are no known passes low as the Yellowhead pass 3200 feet in elevation. Approaching the Peace river, however the mountains decrease in height and width and are traversed by some low passes. Pine River pass, which was estimated by Dawson to have an elevation of 2850 feet above the sea, traverses the ranges where the bordering summits do not rise more than 6000 feet above the sea; and Peace river itself cuts a

valley directly through the main ranges of the Rockies, where their highest points bare exceed 6000 feet in elevation and the valley bottom is less than 2000 feet. . . . The whole of this portion of the Cordilleran province is drained by three principal streams, the Athabaska, Peace and Liard rivers. These rivers have their sources either in the central ranges of the Rockies or in the western slopes, but flow eastward by transverse gaps . . ." (Camsell and Wyatt, Canada Dept. Mines, Geol. Surv., mem. 108, 1919, pp. 15, 16).

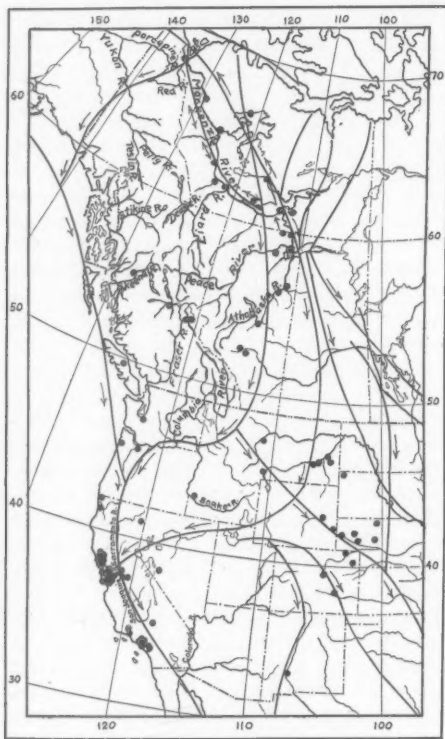


Fig. 33. *Zonotrichia albicollis* in western North America. Dots represent localities of "accidental" occurrence in U. S. west of 100°, and in British Columbia; also summer stations beyond Edmonton, Alberta, and in Mackenzie basin. Northwest drainage shows possible means of access to this region from east of Rocky Mountain divide.

(Migration routes adapted from U. S. Dept. Agric., Circ. No. 363, map 21, p. 40.)

Other statements are made concerning this region—that tributary streams of the Stikine River and the Mackenzie River *interlock*, with height of intervening watershed at about 2700 feet; and to the northwest, branches of the Stikine and Liard rivers inter-

lock with headwaters of several tributaries of the Yukon River. Where Peace River "cuts a valley directly through the main range of the Rockies" and is fed by headwater tributaries, and where Pine River Pass and other passes occur, there, also, the Skeena River, flowing to the Pacific, has its tributary headwaters. In the same sense, as with streams farther north, headwaters of these streams *interlock*. (See fig. 33.)

Thus, reasoning from the physiographical set-up of this region, together with general acceptance of the theory of birds' use of river courses as routes of progression during migration, the following hypothesis is offered to account for the occurrence of *albicollis* at Kispiox Valley in summer. Certain individuals of the species flying north to summer nesting territory were deflected from the usual course of travel when Peace River was reached, and, continuing their flight along this river course, eventually found themselves at the *interlocking* headwaters of the Peace and Skeena rivers, which latter river course carried them on to the destination at which they were later discovered. Also, by this same route up the Peace River, and turning along its southern branch, the White-throats recorded for Bowron Lake and Indianpoint Lake in spring and fall are thus obviously accounted for.

The question has doubtless arisen in the reader's mind as to why so much detail has been given to account for appearance of the White-throated Sparrow in western North America. At the beginning of this paper it was stated that the continuing and increasing number of appearances of *Zonotrichia albicollis* in the west demonstrates a significant phase in the problem of distribution. Therefore, to sum up briefly: On the basis of the appearances of *Zonotrichia albicollis* discussed in this study, the following thoughts are offered.

Each occurrence toward the mouth of the Mackenzie River, beyond the region of regular summer visitation (the farthest outpost being at Lower Ramparts), may well be a demonstration of the previously published concept that "pioneers" are seeking "new territory which may prove fit for occupancy by the species as a whole" (Grinnell, *loc. cit.*). The two birds found in summer in Kispiox Valley were very possibly hardy pioneers potentially initiating a new outpost colony. Or, perhaps, such a detached colony *has* in fact become established, the exact location of which is as yet unknown. Is it not possible that the recorded White-throats of Washington and Oregon, rather than traveling along a Columbia River flyway, may have drifted south from such a British Columbian colony composed of birds which have pioneered from the Mackenzie-Peace-Athabaska summer area, these in turn having come west by various passes and interlocking waterways?

Observed fall, winter and spring visitations of so-called "accidentals" in the United States west of the 100th meridian, with reference to the problem of distribution, may then be looked upon as "pioneers" and "scouts"; and, in time, winter visitation of *Zonotrichia albicollis* in California may be regarded as a *regularly established* extension of the wintering range of the species as a whole.

Museum of Vertebrate Zoology, University of California, Berkeley, October 26, 1937.

THE WESTERN FRONTIER OF THE EUROPEAN STARLING
IN THE UNITED STATES AS OF FEBRUARY, 1937

WITH ONE ILLUSTRATION

By L. M. DICKERSON

Since the successful establishment of the English Starling (*Sturnus vulgaris vulgaris*) in New York in 1890, its migration to the east-, north-, south-, and westward has been watched with interest by ornithologists, both professional and amateur. For a decade the starling remained along the eastern seaboard, meanwhile colonizing into southern Canada and New England. The spread along the Atlantic coast southward was more rapid, and once across the Appalachian mountain barrier the westward migration has progressed with an increasing momentum.

This westward migration is of particular interest because of the variety of ecologic factors encountered by the starling in pioneering a new area. In the northward and eastward migrations, temperature ranges are sufficiently low that this single climatic factor may be expected to dominate and ultimately limit the distribution and population density both directly and indirectly. To the west and south, on the other hand, the starling encounters an increasing variety of environment and decreasing climatic restrictions until it reaches the Great Plains region and the Rocky Mountains.

The progress of the westward advance of the starling has been summarized by May Thatcher Cooke (1925, 1928) covering the area east of the Mississippi River, and in one publication by E. C. Hoffman (1930) extending the study west of that line. The purpose of this report is to record new data which extend the westward range appreciably and to point out certain features of field observation which may be significant and deserve organized study. With the exception of a few locations recorded by Hoffman (1930), points east of the Mississippi River have been omitted from this report on the grounds that this feature of the subject has been covered adequately in previous publications. (See Forbush, 1915; Cooke, 1925, 1928; Lewis, 1927; Kalmbach, 1929.)

The writer wishes to express appreciation to Mr. James O. Stevenson, of the National Park Service, Washington, D. C., for permission to use certain unpublished records from his notes. Thanks are due, also, to the CCC camp superintendents and other National Park Service field personnel who have shown an interest and spirit of cooperation in collecting data, beyond that required by official duty.

DATA AND METHODS

The subject matter presented consists of new records supplemented, in the preparation of the accompanying map (fig. 34), by published records taken from the Auk, Bird-Lore and the Wilson Bulletin over the period 1928-1937. These published records have been particularly valuable in that they extend the westward frontier across states to the north of the new records.

The new records are from two sources, namely, (1) field observations by wildlife technicians of the National Park Service; and (2) records obtained concurrently from a number of isolated points by means of a questionnaire sent out to the superintendents of CCC camps located in Arkansas, Oklahoma, and Texas which with New Mexico and Arizona comprise Region III of the National Park Service.

The returned questionnaires proved both interesting and surprising. A description of the English Starling was sent out with each questionnaire, which was mailed on January 7, 1937. Replies began coming in the following week. Only about half of the camps reported the presence of starlings; but, in most instances where they were

reported to be present, pertinent clippings from current issues of local papers were enclosed. Usually these news articles were written by either a local ornithologist or a

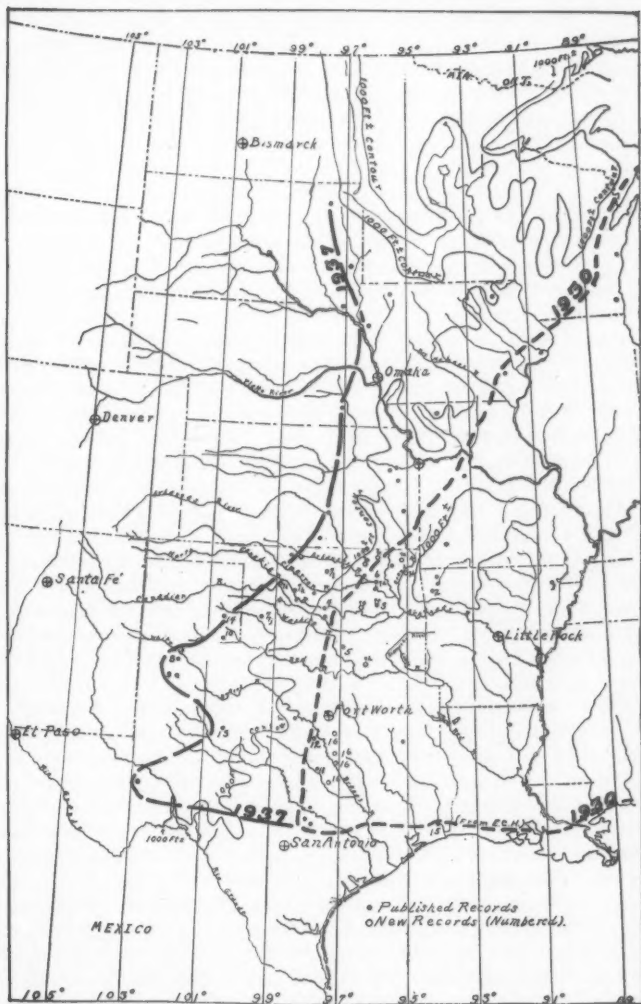


Fig. 34. Map showing the westward migration frontier in the United States, of the European Starling (*Sturnus vulgaris*) to February, 1937.

biology teacher in a nearby school, and represented typical first reactions to the presence of migrating flocks of the English Starling. In every case the noise and litter from roosts, and apprehension of competition with native songbirds, were featured. Field

observations by wildlife technicians during December in the area covered by the questionnaire indicated that probably during January and February the birds would have reached their widest distribution. Thus, the timing of the questionnaire accounts for, in a measure at least, the widespread distribution indicated, and suggests an actual dispersal rather than successive reports of one large migrating flock.

Of the questionnaire records only those are published which the writer considers to be sufficiently well grounded as to identification to justify recognition as positive and authentic. One report is supported by a study skin; another by a photograph of a dead starling.

DISCUSSION

The new records reported here are migration records only. There is presumptive evidence that the starling now breeds in the eastern part of Texas and possibly in eastern Oklahoma. No definite records of nests were obtained, however, and for that reason no attempt has been made to show the limits of the breeding range on the accompanying map.

As noted by Hoffman (1930), investigations in England indicated that land elevation influences starling migrations there. The same author found that in 1929-1930 the western frontier approximately paralleled the 1000-foot contour. The present frontier (see accompanying map) is established well above the 1000-foot level, but still parallels this line as closely as it did in 1930. It is worthy of note, however, that all records to the west of (above) the 1000-foot elevation occur very close to streams, some of them in the headwaters of tributaries. It may be significant, also, that the most westerly records are along streams the courses of which most nearly parallel the east-west trend of migration. It has been noted frequently and commented upon repeatedly in published notes that the starling tends to favor the neighborhoods of large bodies of water. Banding records indicate, also, a greater tendency toward migration in birds close to the frontier than among those in the long established breeding areas. First-appearance records are too few to show reliably to what extent migration is limited to water courses and shorelines, but many circumstances are suggestive. For instance:

The starling was reported in eastern Oklahoma and in northwestern Arkansas in 1929-1930, yet not until 1934 is there any record of it in eastern Arkansas. Lundquist (1934) reported the first record from South Dakota, from a location in the northeast corner of that state. This isolated occurrence antedated any records from the southeastern corner of the state adjacent to Iowa, from which state the bird had been reported several years earlier. These circumstances may be due entirely to incomplete reporting of the migrants; but the differences in time of recording would be readily understandable if the migration of the starling is in fact restricted to shores and streams. Thus a route westward from Lake Michigan or Lake Superior to the Mississippi River and up a western tributary to the northeastern corner of South Dakota would be shorter and more direct than a route down the lake shore and Mississippi to the Missouri River and thence up this river and its tributaries to the southeast corner of the same state and adjoining portions of Iowa. The large number of small lakes and streams in Wisconsin and Minnesota would make long overland flights unnecessary, and the elevations of land to the north would tend to favor a westward and southward course. With the limited data available no definite conclusions are justified. If, however, the starling rarely or never migrates overland directly, that circumstance may have a definite bearing upon its ultimate distribution and the effect it has in competition with native bird populations.

The question raised in the preceding paragraph is one of several which can be studied adequately only by organized banding and reporting. Another is raised by Nichols (1937) in his comments upon the records of north-south migration obtained by Kalmbach (1932) and Thomas (1934), when he points out that the migration and spread of the starling in America has been along a northeast-southwest axis, principally. In Europe, similarly, the migration is primarily along a northeast-southwest axis. To what extent and through what subjective response topography affects the migration of the starling is unknown. This is an introduced species pioneering a new continent. It will be easier to get conclusive information on the environmental factors affecting its spread before the breeding range reaches its ultimate limits than at any time later.

It is apparent that the present is an opportune time to begin such a study as is needed. In order to make such a study effective it is necessary (1) to have a favorable opportunity for banding both young and winter migrant birds in considerable numbers, and (2) to have favorable circumstances for accurate returns of banded birds from new areas. Observations by the writer in the field during 1936 (record 16) indicate that there is probably an ample supply of breeding birds along the Mississippi River and that an abundance of winter migrants can be trapped along the 1930 frontier mapped by Hoffman (1930). Through Texas and Oklahoma this line corresponds approximately to the location of U. S. Highways 81 and 77. On a trip through this area December 20-23, 1936, large flocks of starlings were seen east of highway 81; yet only small groups were seen within a few miles west of the highway and none was observed south of San Antonio. Beyond this belt (approximately the 98th parallel of west longitude) the starling approaches increasingly arid climatic conditions before reaching the Rocky Mountain region. Thus an excellent opportunity is offered to test, in rather closely measured terms, the effectiveness of this barrier. (See fig. 34.)

The second requisite is met by the present coincidence of time and distribution. The starling has penetrated to the 103rd parallel, but apparently little if any distance beyond. Just west of the 105th parallel begins a series of National Parks, Monuments and Forests extending practically from the northern to the southern boundary of the country. In these areas are resident personnel competent to report banded birds accurately. Furthermore, prompt observation and return of banded records can be obtained from these areas without an elaborate preparatory organization.

To date, the starling has demonstrated its ability as a pioneer in the eastern and central United States and may be considered as an exotic species which is here to stay. An aggressive, adaptable bird, it readily displaces many native species where there is an abundant food supply assured by human activities, such as agriculture and poultry husbandry. As yet its success under more primitive conditions is unknown. So far there has been little competition with native American game birds. With several species of non-game birds the starling competes for both food and nesting sites. Probably the most serious threat to the native song birds is to be found in the tendency of starlings to congregate during late winter and early spring in large migrating flocks. These flocks effectively clean up all available reserve foods just before and during the northward migration of many species. The starling is an omnivorous feeder. Thus both seed-eating and insect-eating migrants may be left at the mercy of any severe snow storm or similar climatic catastrophe encountered.

SUMMARY

At present the European starling may be considered to have extended its migration range to approximately the 103rd parallel of west longitude. The greatest density of migrating populations encountered during December, 1936, and January, 1937, oc-

curred approximately between the 97th and 98th parallels. The breeding range has extended to the Mississippi River and probably as far west as eastern Texas. The present distribution of the bird offers an exceptionally favorable opportunity for the institution of an organized program of banding and field study to reveal the critical and dominant factors involved in the establishment and distribution of this exotic species in the continental United States.

RECORDS NOT PUBLISHED PREVIOUSLY

1. Crowley's Ridge State Park, Paragould, Arkansas. Report sent in by W. R. Bell, Landscape Architect, SP-14, of Paragould. Starlings were reported to, and identified by, Mr. William Meriweather, a local ornithologist, living at 309 Garland Street, Paragould, in 1934. In 1936 two reports of small flocks (6 to 8 birds) in that vicinity were sent in. (The letters SP followed by a number, here and below, are CCC camp designations.)
2. Devil's Den State Park, West Fork, Arkansas. A photograph of a dead starling was taken in the park February 11, 1937, by Mr. W. B. Perry, Mechanic. This record is of interest because it comes from a wooded area, thinly settled and with an elevation of more than 1000 feet above sea level.
3. Okmulgee, Oklahoma. Report sent in by Mr. Walter C. Hallock, Supt. SP-14, Okmulgee, January 1, 1937. Small flocks of starlings were observed feeding about the city.
4. Oklahoma City, Oklahoma. On February 2, 1937, the Oklahoma News carried items on the nuisance habits of the starling. This is of interest in that the report concerns flocks of starlings within the city. Previous reports from this area were principally concerned with birds reported near Lake Overholser, the city water reservoir, several miles from the city.
5. Platt National Park, Sulphur, Oklahoma. Starlings were identified in the park December 11, 1936, by Mr. Don Stauffer, Forester, Platt NP-1, and reported by Superintendent Wm. E. Branch. This report is confirmed by a study skin sent in by Mr. Stauffer and constitutes the only known report of the starling from a National Park west of the Mississippi River.
6. Tulsa, Oklahoma. Twelve starlings were observed in open woods, feeding through trees in Mohawk Park in December, 1936, by Mr. Hugh S. Davis, Director of Conservation and Zoological Gardens. Previous reports of individuals or pairs of birds in this region have been published.
7. Oklahoma City, Okla. Mr. James O. Stevenson observed 200 starlings at Oklahoma City on December 25, 1935, and collected one specimen. Other records reported by Mr. Stevenson from Oklahoma with dates and notes are as follows: (a) Tulsa, large flocks seen in February, 1936; (b) Pawhuska, 100 seen in November, 1935; (c) Bartlesville, large flocks seen during the winter of 1935-36; (d) Spavinaw, large flocks seen during the winter of 1935-36; (e) Vinita, large flocks seen during the winter of 1935-36; (f) Okmulgee, large flocks seen during the winter of 1935-36; (g) Prague, small flocks seen in December, 1935; (h) Durant, small flocks seen in December, 1935; (i) Seiling, several seen November 20, 1935; Sayre, 350 seen December 18, 1935; Watonga, small flocks seen in December, 1935; (j) Ponca City, small flocks seen in December, 1935.
8. Hale Center, Texas. An account in the Lubbock (Texas) Avalanche Journal, February 19, 1937, commenting on the large numbers of starlings about the countryside, was sent in by Mr. Melvin D. Cohen, Supt. SP-52, Lubbock, Texas. The author of this article suggested that recent floods in the Ohio and Mississippi river valleys may have forced migration into Texas! Other comments indicate that the starling is not a familiar bird in the region. Descriptions of the birds accompanying the articles were sufficient to credit the identification in this and the following instance.
9. Lubbock, Texas. A clipping from the Lubbock (Texas) Avalanche Journal of February 19, 1937, relates attempts of the local constabulary to shoot out flocks of starlings which annoyed hotel guests. This clipping was submitted by Mr. Melvin D. Cohen, Supt. of Camp SP-52, Lubbock.
10. Memphis, Texas. A news account from the Amarillo (Texas) Daily News of January 29, 1937, describes the starling as a relatively unfamiliar bird in the region. This item was submitted by Mr. Wm. M. Anderson, Supt. SP-14, Canyon, Texas.
11. McGregor, Texas. Starlings were observed about 3 miles from McGregor, on state highway no. 7. This report was submitted by Mr. B. A. Tripp, Inspector for the National Park Service, January 12, 1937. This report is interesting primarily in that with other records it indicates that the starling was widespread over the state at this particular time.
12. Cleburne, Texas. Scattered groups of starlings were observed near the city early in December. By the middle of January they had appeared in the park 13 miles west of the city. This report was submitted by Mr. C. R. Byram, Supt. SP-53, Cleburne.
13. Sweetwater, Texas. Starlings were first observed around Lake Sweetwater about December 20, 1936. They increased in numbers until by January 5, 1937, it was estimated that several thousand

starlings were present in the park. An interesting feature of this report is that the birds were reported as moving southward. Report submitted by Mr. E. F. Rowland, Supt. SP-41, Sweetwater.

14. Shamrock, Texas. Four starlings were observed near Shamrock, in the Texas Panhandle, December 21, 1935, by Mr. James O. Stevenson.

15. Beaumont and Port Arthur, Texas. On January 8, 1926, a starling was brought to Mrs. Bruce M. Reid of Port Arthur for identification. This information was submitted by Mr. Henry D. Anastasas, Supt. SP-50, Beaumont, Texas. The appearance of the starling at Port Arthur in 1926 is interesting in that it antedates by several years the earliest record for Arkansas and Louisiana, which must have been passed or crossed during the migrations. This circumstance would be understandable if the starling, in its southward migration, moves only along watercourses and the flocks do not disperse until after the return migration begins. Thus the birds would not be led into the western areas until they followed the Gulf coast or until, on the return migration, the birds followed tributary streams and were led off the main watercourses. Quoting from Mrs. Reid's letter to Mr. Anastasas concerning present populations (ten years after the first appearance): "In 1936 from late October on through March starlings were as common as any other bird with the exception of the swallow."

16. Alvards, Hillsboro, Waco and Temple, Texas. Flocks of starlings were observed by L. M. Dickerson along highway 81 (US) during a trip through this area December 20 to 23, 1936. Large flocks were concentrated in the territory along and just to the east of this highway which lies close to the 98th meridian. A few miles to the west of the highway along parallel roads no starlings were seen. None was seen south or west of San Antonio, Texas. A few miles north of Hillsboro, two flocks of about 200 birds each were seen. Other flocks contained from 12 to 50 birds. Small groups of starlings were seen with blackbirds also.

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National Park Service, San Francisco, California, March 2, 1938.

FROM FIELD AND STUDY

Hutton Vireo Nesting in February.—It was my good fortune as well as surprise to collect a nest with four eggs of the Hutton Vireo (*Vireo huttoni huttoni*) on February 22, 1938. This is, I believe, the earliest breeding record for this vireo. The nest was well obscured in a large oak tree, among other oaks, up about 20 feet from the ground and out 36 feet from the trunk at a fork of twigs at the end of a branch. The locality was near El Casco, San Timoteo Canyon, Riverside County, California, and about sixteen miles southeast of Colton.

The nest was first seen on February 20 when I, in company with W. F. Moore and Oscar F. Clarke, saw a bird go to it. At that time the nest had but two eggs. On the 22nd, one bird flushed from the branch near the nest, while the incubating mate was actually touched as it sat on the nest. The nest is of the usual vireo type made of fine fiber covered over with light green moss and with a good lining of shredded fiber. The outside measurements are 3 inches in diameter as well as depth, while the inside diameter is 1.7 inches and the inside depth 1.5 inches.

The eggs are typical, white with but few markings, and the weight in grams was 1.71, 1.67, and 1.65. The other egg had a defective shell and no weight was secured. My records show the average weight of ten eggs to be 1.74 grams, with a maximum of 2.16 grams and minimum of 1.51 grams.

Both the earliest and latest records for nesting which I had previously were of nests in the Santa Ana River bottom, the former being March 25, 1923, and the latter May 21, 1926. This last nest held two eggs of the Dwarf Cowbird.—WILSON C. HANNA, Colton, California, February 22, 1938.

Notes on a Young Golden Eagle in Colorado.—Late in the summer of 1936 we noticed, on a ledge projecting from the face of a sandstone butte, a rather large eyrie. While the construction seemed somewhat too heavy for a Rough-legged Hawk, we were reluctant to consider any other possibility because of the extraordinary accessibility of the location. The butte in question is only a few miles east of Colorado Springs, near a road, and on one side it blends without a perceptible break into the open prairie. The ledge itself is only three and a half feet below the flat table top of the butte. We were sufficiently intrigued to visit the place again the past spring (1937), not once as it turned out, but many times.

The first of these visits was on May 30. Not knowing what awaited us, we approached the eyrie rather carelessly and a female Golden Eagle (*Aquila chrysaetos*) sprang from it when we were about ten feet away. In the nest there was one young of estimated age of one week. One sterile egg was discovered on the top of the butte about twenty-five feet from the eyrie. At intervals of two or three days the visits were continued, until June 24. On eight of the eleven visits one or both of the old birds were present, the female usually protecting the young bird from the brilliant sunlight. Numerous photographs were taken of the young and old birds, some at a distance as short as $3\frac{1}{2}$ feet. Once the female nearly knocked the camera from the photographer's hands in her effort to depart.

As we approached the eyrie on our last visit, we saw several boys in the neighborhood of the butte. To our disappointment we observed that their objective was the same as ours, and we overtook them as they were marching away with the young eagle in their possession. It would not have been difficult to have persuaded them to return the bird to the eyrie, but after conversing with them for a half hour and pointing out the responsibility which they were undertaking, we decided that if we did, it was quite likely that the young eagle could fall into the hands of less humane captors. The boy who had possession of the bird had had an eagle once before which, according to him, he had kept in good condition. As that bird finally escaped, it can be hoped that this one will also regain its freedom.

It ought to be mentioned that not once did we find remains of food at the eyrie other than cotton-tails and jack-rabbits. Apparently food was brought at irregular intervals. Sometimes we found two freshly killed animals in the eyrie and on other occasions it was obvious that the food supply was two or three days old. The owner of the ranch on which the butte is located did what he could to protect the eagles. He had numerous chickens but they were never touched. Incidentally, we have noticed that the farmers and ranchers in this neighborhood are well aware of the economic value of birds of prey.

Considering the tactics of other raptors in the defense of their nests, we were a little disappointed that this pair of eagles made no effort to defend theirs. After not more than one lazy circle they always disappeared beyond the range of vision of six-power binoculars.—T. H. RAWLES and L. W. RAWLES, Colorado College, Colorado Springs, Colorado, March 3, 1938.

Fewer Golden-crowned Sparrows at Woodacre Station this Winter (1937-38).—The Golden-crowned Sparrows (*Zonotrichia coronata*) appeared at my banding station near Woodacre, Marin County, California, in lesser numbers this fall and winter than has been the case since the station was established, in 1928. Instead of several hundred of them wearing new bands only 87 have been banded so far this season. On the other hand there have been relatively more returns than in any previous season. Of these latter the year of banding and the number of returns were as follows: 1930, 1; 1931, 1; 1932, 0; 1933, 3; 1934, 2; 1935, 5; 1936, 22; 1937 (spring), 3: a total of 37 individuals. (In bird banding a "return" follows an absence of at least six months.)

Of the above returns the outstanding record is that of one that was banded as an immature, with band number A176908, on October 20, 1930. This bird was found in a trap on November 25, 1931; on April 3, 1932; November 6, 1933; February 11, 1934; December 2, 1934; November 8, 1935; October 25, 1936; and on December 5, 1937. Each time it returned it repeated a few times and disappeared again.—JOSEPH MAILLIARD, *California Academy of Sciences, San Francisco, February 6, 1938.*

The Clark Nutcracker at Sea Level.—In September, 1935, one of our local bird students called me at the museum and reported seeing a flock of 12 Clark Nutcrackers (*Nucifraga columbiana*) on La Cumbre Peak, which is approximately 8 miles air line from Santa Barbara and with an altitude of 4000 feet. I thought this interesting, as these birds are rarely seen in this vicinity at such a low altitude. However, on September 24, 1935, while on the beach near Goleta, Santa Barbara County, California, I thought I heard the call of a Clark Nutcracker. The notes came from some Monterey pines located in the door yard of a ranch house situated perhaps 450 yards from the beach. Upon scrutinizing the trees, I saw one of the birds pecking at a cone vigorously. While watching this one, I saw another in the same tree.

I collected both birds. One proved to be an adult male and the other an immature female. The male (no. 2962) I mounted for our exhibition collection in the hall of local birds, and the female (no. 2997) is in our study series. These are apparently the second and third specimens from the vicinity of Santa Barbara, a female (no. 843) having been picked up in Montecito, October 15, 1919, by Mr. William Barker.

On October 16, 1935, while collecting near the mouth of the Santa Clara River in Ventura County, I saw a single Nutcracker flying low over the willows.—EGMONT Z. RETT, *Santa Barbara Museum of Natural History, Santa Barbara, California, February 28, 1938.*

Red-naped Sapsucker and Rufous Hummingbird.—An interesting case of Rufous Hummingbirds (*Selasphorus rufus*) making use of Red-naped Sapsucker (*Sphyrapicus varius nuchalis*) workings was observed July 14-15, 1934, in a canyon a few miles northwest of Strawberry Reservoir, Wasatch County, Utah. The tiny stream of water in the bottom of the canyon was lined with clumps of willows, with stems up to an inch in diameter. The sapsuckers were observed in several places, working on the stems in the usual woodpecker fashion, holding with the feet, bracing with the tail, and picking at the stem.

Upon investigation, it was found that large numbers of stems had small patches of bark removed, up to one or two inches in length. Sap juices were slowly exuding from the cambium layer under the bark on to the edge of the bare area. Our observations seemed to indicate that in some cases the sapsucker had taken not only the exuding sap, but also some pieces of bark from the edge, thus enlarging the area.

It was noted also that the Rufous Hummingbirds made use of these same bare spots by standing in the air on their flutterings wings, probing with the bill as if sipping the exuding juices, and moving from bare spot to bare spot to repeat the probing. Whether the hummingbirds also picked up some of the insects collected around the exuding sap could not be determined; but our observations of the Western Yellow Warblers (*Dendroica aestiva morcomi*) fitting about in the willows, at least aroused the suspicion that they were taking such insects.—A. M. WOODBURY, *University of Utah, Salt Lake City, Utah, January 5, 1938.*

Black Oyster-catchers at Point Lobos.—On October 24, 1937, the sun came into a clear sky, but on the far horizon beyond the blue sea there was a heavy bank of fog. We were walking in the Point Lobos Reserve, Monterey County, California, when we spied what we took to be a flock of crows perched in an unusual situation. The birds were resting high and dry, yet not much above the splash of the sea. The perching site was on one of those sandstone humps that reach out into the sea from the south shore of the Reserve.

Looking through the binoculars we discovered that the birds were sleeping and either resting on one leg or lying flat on their bellies. Every minute or so one bird or another would untuck its bill, raise its head, and look about. Of course as soon as we looked through the binoculars we realized that the birds were Black Oyster-catchers (*Haematopus bachmani*). We watched them for one hour and five minutes, finally getting within 150 feet of them. The ten birds were scattered over a space about ten feet square and although closely grouped they were noticeably separated into pairs.

Children scampering over the rocks frightened the birds. They flew off in a compact flock, uttering a few squeally notes as they went. Three or four hundred yards up the coast the flock split and six birds turned back toward Bird Rock. Later in the day when returning home we saw six Oyster-catchers perched close to the water on the steep face of Bird Rock. These birds were also separated into pairs. They were not especially shy, since they paid no attention to a group of men who were fishing from the mainland a hundred yards from their perching site.

On October 25, after some search, we managed to find one Oyster-catcher. The tide was low and the bird was foraging on a mussel-covered flat. It was deliberate in its manner; stealth was in all its movements as it stalked its prey. A sudden stab, and when it lifted its head a long spile worm was dangling from its red mandibles. The whole performance reminded me of a robin stalking angleworms on a wet lawn.—CHARLES W. MICHAEL, *Pasadena, California, November 15, 1937.*



Fig. 35. Wandering Albatross captured and released in the Bay of Panama.

The Wandering Albatross in the Bay of Panama.—Mr. Lee B. Carr, of Balboa, Canal Zone, Captain of the launch "Wilpet" during my recent work along the Pacific coast of Colombia, informed me that an albatross had been captured in the Bay of Panama during August, 1937. Receipt of a photograph made by Mr. Carr reveals the surprising fact that the bird was a Wandering Albatross (*Diomedea exulans*), in the dark plumage of a yearling, with white face and wing-lining. Mr. Carr's note states that the captive was picked up by a fishing boat, carried into Balboa on deck, and was subsequently released on high ground, whence it took off successfully toward the sea after a running start.—ROBERT CUSHMAN MURPHY, *American Museum of Natural History, New York, March 11, 1938.*

Concentration of English Sparrows to Feed on Oak Galls.—On December 7, 1937, I noticed a group of from 70 to 100 English Sparrows (*Passer domesticus*) in a large and rather isolated live oak on the Berkeley campus. The birds were actively and noisily feeding in the foliage of the tree. Several were seen clinging up-side-down in chickadee fashion to peripheral branches.

Examination disclosed the oak to be badly infested on the undersurfaces of perhaps half its leaves by a small gall of 2 to 4 millimeters diameter, caused by a gall-wasp (family Cynipidae). The sparrows were seen to be eating these galls, apparently whole, for the few dropping to the ground were not broken but seemingly just knocked off. Probably the younger galls were eaten for the most part, as the galls become dry and hard when older. Though the enclosed larvae must have proven acceptable food, it seems likely that the young and succulent plant tissue of the gall was equally acceptable. The concentration of sparrows remained great at least half of this day but dwindled during succeeding days, no sparrows being observed after December 10.

Although the economic value of these English Sparrows due to wholesale destruction of an insect which can cause extensive defoliation is undeniable in this case, it seems more appropriate to emphasize this observation as another example of the adaptability of the English Sparrow and of its propensity to congregate or to take advantage of a new food source even though this may demand new or peculiar habits of feeding. Such adaptability may well account in large measure for the progressive population of the United States by this bird. Although such plasticity is frequently exemplified in our native birds, it seems less characteristic of them. In the above oak, for example, two Song Sparrows were the only native birds seen apparently feeding on the galls.—FRANK RICHARDSON, *Museum of Vertebrate Zoology, Berkeley, January 13, 1938.*

The Rusty Blackbird in Kern County, California.—On December 16, 1937, while I was engaged in field work in the South Fork Valley of the Kern River, Kern County, California, Mrs. Stanley Smith, the wife of a rancher in the valley, called my attention to a "peculiar looking blackbird" which she had taken away from her cat. Being familiar only with our western blackbirds, I was unable to recognize this specimen. Therefore, upon returning to Los Angeles, I took the skin (now no. 1020, Stager collection) to the Los Angeles Museum, where Mr. George Willett identified it as *Euphagus carolinus*.

Credit is due Mrs. Smith, whose knowledge of bird life enabled her to recognize the specimen as of an unusual bird. According to Mrs. Smith, the cat caught two individuals of this species, but the second bird was too badly mauled to be worth saving. From all available literature, *carolinus* is a rare winter visitor in southern California. Three other records are known, two of which are from the Santa Barbara Islands and the third from Jamacha, San Diego County (Willett, Pac. Coast Avif. No. 21, 1933, p. 155).—KENNETH E. STAGER, *Los Angeles, California, March 4, 1938.*

Two Late Fall Records of Birds in the San Francisco Bay Region.—Dusky Poor-will. *Phalaenoptilus nuttallii californicus*. Before dawn on November 3, 1937, I was stationed on the first high ridge northeast of Temescal Lake, Alameda County, whistling poor-will calls. Soon, answering calls came from the next ridge to the north, and a poor-will appeared, its eyes shining red before my flash-light. It flew around me several times, uttering both the "poor-will" and "quup" notes, then perched for a while upon a fence post near-by. The latest previous record is for October 29, at Berkeley (Pacific Coast Avifauna No. 18, 1927, p. 92).

Cassin Solitary Vireo. *Vireo solitarius cassinii*. A Cassin Solitary Vireo was noted in Wildcat Canyon, Contra Costa County, on November 28, 1937. This is the latest definite record for the San Francisco Bay region. The vireo was foraging in live oaks and leafless poison-oak thickets with a mixed flock of juncos, Plain Titmouses, Ruby-crowned Kinglets, Myrtle Warblers, and Hutton Vireos. It was promptly collected for identification with a sling-shot employed for such emergencies and is now a skin (male, number 200) in my collection.—JOE T. MARSHALL, JR., *Berkeley, California, January 14, 1938.*

"Homing Instinct" in the Golden-crowned Sparrow.—How unusual are the following two records? Since I began banding birds I have been interested in their so-called "homing instinct." By this I do not mean the instinct which impels them in their seasonal migrations, but that which gives them the desire and the ability to return to the same location after having been removed to a distance.

Most of my experiments on this subject have been with Golden-crowned Sparrows (*Zonotrichia coronata*), and I have removed about 100 of these birds from the places where I trapped and banded them to distances of from one mile up to more than 300 miles. Many have been recaptured; some remained for many weeks at the location where they were released and were repeatedly trapped there, but never, with one exception, after the first northerly migration.

The exception was in the case of Golden-crowned Sparrow no. 34-119203, trapped and banded at my home in the Santa Cruz Mountains, San Mateo County, California, about 40 miles south of San Francisco, at an elevation of 2000 feet. This bird was banded on December 10, 1936. It was

trapped again in the same place on December 13, 1936, and was released the same day on the University of California campus, Berkeley. This same bird was trapped again on the university campus by Miss Kathryn S. Buchanan on October 5, 1937.

This instance is unique in my experience, as in every other case when I have released birds from the location where they were first trapped, if they were recaptured after the next migration it was always where they were trapped originally.

I wrote to Mr. Joseph Mailliard about this recapture, and asked him if he had ever had a similar record. Mr. Mailliard writes me that of the fifteen Golden-crowned Sparrows which I trapped in Strawberry Canyon, near Berkeley, on January 20, 1934, and released next day at his country home in Woodacre, Marin County, which is about twenty miles northwest of Berkeley, no. C175847 was retaken at Woodacre on February 3, 1934, and returned to the same place November 10, 1934, repeating November 19 and December 2, 1934. Since then it has not been trapped. Of the remaining fourteen birds, I trapped two again in Strawberry Canyon in January and February, 1934. It would be interesting to know if other banders have similar records.—E. L. SUMNER, Sr., *Mentlo Park, California, February 1, 1938.*

A Species New to the Known Avifauna of Lower California.—On September 19, 1937, Major E. A. Goldman, his son Luther G. Goldman, and the writer embarked on a sport-fishing craft, with its usual company of about 40 patrons, for a day of fishing near Los Coronados Islands, just below the international boundary line in Lower California. While we were drifting about half a mile off the eastern side of the South Island, a lone shearwater was seen to fly toward the boat from a northerly direction. It alighted upon the water, and immediately dove, seized a baited hook on one of the fishermen's lines, and swallowed it. It was reeled in on deck and the writer extracted the hook to save the bird for a museum specimen.

This bird proved to be an adult male Slender-billed Shearwater (*Puffinus tenuirostris*), in rather emaciated condition. It is now no. 17626 in the collection of the San Diego Society of Natural History. Grinnell in his summation of Lower California ornithology (Univ. Calif. Publ. Zool., vol. 32, 1928) does not list this species, nor does there appear to be any subsequent record of its having been taken in Lower California waters.

We were told by the boatmen that many birds are hooked in this way but that they are usually killed and thrown overboard to prevent their further disturbing the sport-fishermen!—LAURENCE M. HUEY, *San Diego Society of Natural History, Balboa Park, San Diego, California, February 17, 1938.*

Distribution of the Races of the Williamson Sapsucker in British Columbia.—Examination of specimens of the Williamson Sapsucker (*Sphyrapicus thyroideus*) from British Columbia in the collection of the British Columbia Provincial Museum led me to assemble all the readily available material from adjacent territory. Specimens were borrowed from the National Museum of Canada, the Museum of Vertebrate Zoology, Colorado Museum, Mr. Kenneth Racey, Dr. Alden H. Miller, and Mr. Stanley G. Jewett. To these institutions and individuals I wish to express my thanks.

The breeding range of *S. t. thyroideus* is known to extend from the Cascade Mountains of southern British Columbia to the Sierra Nevada of California and adjacent mountains. That of *S. t. nataliae* is stated to be (4th ed., A.O.U. Check-list, 1931, p. 194): "Boreal forests of the Rocky Mountain region from Montana to central Arizona and central New Mexico."

Measurements of length of wing and of tarsus fail to disclose any constant difference in those respects between the individuals of the two races. Apparently the sole distinguishing character is, as brought out by Swarth (Condor, vol. 19, 1917, pp. 62-65), the size of bill. That of *nataliae* is shorter and more slender than that of *thyroideus*.

In British Columbia the Williamson Sapsucker occurs in the Transition Zone of two areas. In the Okanagan region it is common in the mountains on the international boundary and occurs north, casually at least, to Schoonover Mountain. In this general region it is found east to Midway, west to Similkameen. The species is apparently absent from the large area between Midway and the East Kootenay. In the latter district, however, as shown by specimens from Cranbrook and Newgate, there is a small breeding population.

As regards bill size, the birds of the Okanagan region apparently are identical with specimens from western Oregon and from the Sierran region of California, and may be referred to the race *thyroideus*. Measurements of the East Kootenay specimens, as set forth on the accompanying graph (fig. 36), will be seen to fall well within the limits of variation for *nataliae*, as exemplified by a series from Arizona. The discovery of a population clearly representative of *nataliae* in eastern British Columbia marks a considerable extension of the known range of this race.

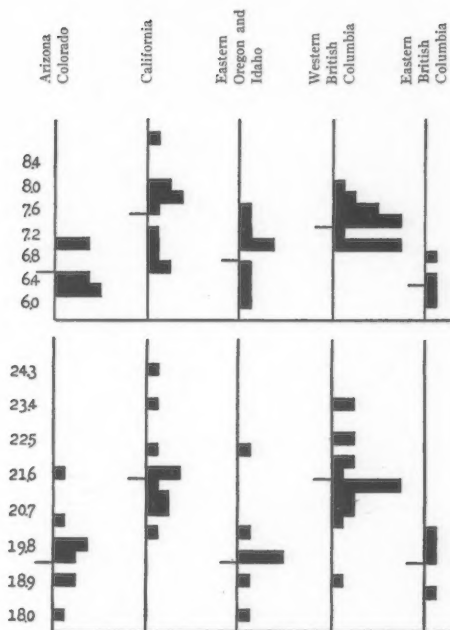


Fig. 36. Graphs illustrating geographic correlation of width of bill (upper) and length of bill [nostril to tip] (lower) in *Sphyrapicus thyroideus*. Each square represents a single adult bird. Lines (short) at left of vertical lines mark average in each case. Measurements are in millimeters.

I have examined nine specimens from eastern Oregon and one from northern Idaho. The one from Idaho seemingly is referable to *nataliae*. Of the Oregon specimens, one from Wallowa County is apparently typical *thyroideus*; one from Meacham, Umatilla County, and another from the Ochoco National Forest, are typical of *nataliae*. The others present characters intermediate between the two races, but on the average they are closer to *nataliae*. The intermediate nature of these specimens from eastern Oregon suggests that in this state intergradation may take place between these two races which elsewhere have their breeding areas completely isolated from one another.

Specimens examined.—*S. t. thyroideus*. British Columbia: Anarchist Mountain, 14; Schoonover Mountain, 3; Incaneep Creek, Okanagan Valley, 3; Midway, 3. Oregon: Wallowa County, 2. California: Parker Creek, Warner Mountains, 1; 5 mi. NW Eagle Peak, Modoc County, 1; Yosemite Park, Mariposa County, 2; Horse Corral Meadows, Fresno County, 1; Dry Meadow, Sierra Nevada, Tulare County, 1; Dry Lake, San Bernardino Mountains, San Bernardino County, 2; Grass Valley, Nevada County, 1; Pasadena, Los Angeles County, 1; Walker Basin, Kern County, 1.

S. t. nataliae. British Columbia: Newgate, 1; Cranbrook, 3. Oregon: Ochoco National Forest, 1; Anthony, 3; Meacham, Umatilla County, 1; Target Springs, Wallowa County, 1; Wallowa County, 2. Idaho: Payette Lake, Adams County, 1. Colorado: Palmer Lake, 1. Nevada: Irish Mountain, Lincoln County, 1. Arizona: 21 mi. S Springerville, Apache County, 3; 2 mi. E Peña Blanca, Santa Cruz County, 1; NE base San Francisco Mountain, 1; Chiricahua Mountains, Cochise County, 3.—IAN McTAGGART COWAN, Provincial Museum, Victoria, B. C., January 17, 1938.

NOTES AND NEWS

The biennial membership roster of the Cooper Ornithological Club which concludes the present issue of the *Condor* was prepared by the Club's Treasurer, Mr. John McB. Robertson. It contains 919 names of persons as of full standing on April 25, 1938. This is considerably the largest membership in our history. This roster will serve ornithologists generally as a guide to the latest addresses of correspondents. Also, of course, it indicates the addresses used currently in sending out the *Condor*. In the latter connection, any correction or change necessary in anyone's address should be reported at once to Mr. Robertson, in order to insure prompt receipt of our magazine as issued. The officers of the Club herein listed are as in office at the conclusion of the elections held at the last annual meeting, in Fresno, April 15 and 16, 1938. This, the first mid-state meeting of the Club, was successful in every conceivable way; it will be reported upon in full in our July issue.—J. G.



Fig. 37. Jean Delacour, General Secretary of the Ninth International Ornithological Congress that meets this month in Rouen, France.

MINUTES OF COOPER CLUB MEETINGS NORTHERN DIVISION

JANUARY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, January 27, 1938, at 8:00 p.m., in Room 2503 Life Sciences Building, Berkeley, with President Kinsey in the chair

and about 150 members and guests present. Minutes of the Northern Division for December were read and approved. Minutes of the Southern Division were read by title only. Names proposed for membership were: George T. Oberlander, 1735 Rose Street, Berkeley, and Wallace Taber, Museum of Vertebrate Zoology, Berkeley, by Frank Richardson; Richard Compton Santee, 432 Midway Avenue, San Mateo, California, by E. L. Sumner, Sr.; Alfred H. Reuss, Jr., 12910 S. Mozart Street, Blue Island, Illinois, by J. M. Linsdale.

The secretary read a letter from City Manager Hollis R. Thompson, informing the Cooper Club that the Berkeley City Council had never considered adopting an ordinance which would permit shooting on the waterfront. This was in reply to a letter and a set of resolutions sent to him by the corresponding secretary on December 30, 1937.

Mr. Test reported on the December meeting of the Alameda County Wildlife Federation, at which four major issues were considered. A proposed change in the name of the central organization from General Wildlife Federation to National Wildlife Federation was to come up for approval in February. A change in policy to permit initiation of local projects by the local organizations was approved. Plans were outlined for Wildlife Restoration Week, to be held March 20 to 27. Discussion of plans for wild life management in the Regional Parks was scheduled for the March meeting.

Mr. Alden Miller, chairman of the nominating committee, presented the following slate of officers for 1938: President, John T. Emlen, Jr.; Vice-President, E. Lowell Sumner, Jr.; Secretary, Mrs. Joseph Grinnell; Recording Secretary, Miss Frances Carter. It was moved and carried that the nominations be closed and the secretary instructed to cast a unanimous ballot for those officers. Mr. Kinsey then turned the meeting over to the new president, Mr. Emlen.

Mr. Grinnell reviewed two recent publications: Nuttall Ornithological Club, 1873-1919, by Charles F. Batchelder, and Bird Studies at Old Cape May, by Witmer Stone, in two volumes, published by the Delaware Valley Ornithological Club. Mr. Laidlaw Williams reported some of his field observations for the past three months on the Monterey peninsula. Also, at the Los Baños Game Refuge, January 4, the same observer had seen the carcasses of 8 Barn Owls at one pole trap and one at another. Mrs. Meade had seen four Snowy Egrets and three American Egrets on a marsh within the city limits of San Diego, in December. Mr. Kittredge had recently seen one

Condor between Ojai and Maricopa. Mr. Emlen had observed 250 Wood Ducks on a slough near Butte City, January 12. Occasional statements by Sacramento Valley residents as to great loss of bird life during recent floods were not entirely borne out by observations of either Mr. Emlen or Mr. Covell. Mr. Kinsey's records from Marin County indicated the greatest scarcity of birds in his twelve years of observation there.

Mr. Andrew Shirra Gibb presented, under the title of "Bird Shots by an Amateur Photographer," several splendid reels of motion pictures in color. These included the birds in his garden in Berkeley, waterfowl at Lake Merritt, and remarkable habitat studies at the Point Lobos reserve and in various parts of Marin County.

Adjourned.—FRANCES CARTER, *Recording Secretary*.

FEBRUARY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, February 24, 1938, at 8 p. m., in Room 2503 Life Sciences Building, Berkeley, with President Emlen in the chair and about one hundred members and guests present. Minutes of the Northern Division for January were read and approved. Minutes of the Southern Division were read. Names proposed for membership were: John Davis, 2427 Durant Avenue, Berkeley, by Alden H. Miller; Andrew Shirra Gibb, 2664 Shasta Road, Berkeley, by Mrs. Charles A. Harris; Charles G. Sibley, 6524 Dana Street, Oakland, by Joe T. Marshall, Jr.; Dana Sperr, 335 Newton Avenue, Oakland, by Brighton C. Cain. The president announced that the dates of the Annual Meeting, to be held in Fresno, had been set for April 15 and 16, and urged early preparation of any papers to be read at that meeting.

Reviews of recent literature, the president stated, would be welcomed from any member who might care to contribute to that part of our programs. The meeting was opened to reports of field observations. Mr. Dyer said that a White-tailed Kite had been seen between Richmond and San Pablo by Dr. Reynolds and later by himself. With the head of a White Pelican, found dead at Clear Lake, Mr. Cain demonstrated the effective fishing apparatus made by the pouch and lower mandible. Milton Siebert gave detailed records of the Starling in Wyoming, for November, December and January. The greatest numbers were 21 at Pine Bluff on December 25, 13 at Laramie on January 15, and 16 on January 22, as recorded by O. C. McCreary. A record of the White-throated Sparrow from Marin County, October 23, 1937, by Dr. A. Sidney Hyde, and additional records from Berkeley by Mrs. Saunders, Mr. Taylor and Mr. Thompson, and from Oakland

by Mr. Dyer, indicate that the species is now being observed more commonly about the Bay region. Mr. Santee had seen a Golden Eagle attacked by a Red-tailed Hawk, at Spring Valley Lakes, San Mateo County. Mr. Wolfson reported the trapping, in Strawberry Canyon on February 14, of one typical Slate-colored Junco and four other races of Junco, in the same flock. Mr. Covell said that the February Bulletin of the San Diego Natural History Society contained protests against the slaughtering of Sea Lions off Lower California by the manufacturers of a certain dog food. Mr. Laidlaw Williams added that the Fish and Game Commission had been asked to investigate the shooting of Sea Lions from fishing boats off Point Lobos.

The speaker of the evening, Mr. Aldo Starker Leopold, presented "Some Observations in the Sierra Madre of Chihuahua," illustrating his talk with lantern slides. The interior of this mountainous country, which for political and economic reasons has remained virtually undisturbed, may represent the ecological conditions which existed in comparable areas of Arizona and New Mexico, before over-grazing and other factors brought about erosion. Hence, this region has great value as a research laboratory, where a picture may be obtained of conditions toward which restoration work in our own semi-arid southwest should strive.

Adjourned.—FRANCES CARTER, *Recording Secretary*.

SOUTHERN DIVISION

JANUARY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum, Exposition Park, on Tuesday, January 25, 1938, at 8 p. m., with President Little presiding and about thirty members and guests present.

Minutes of the Southern Division for December were read and approved. Minutes of the Northern Division were read. The following applications for membership were read: C. Lynn Hayward, Dept. Zoology, Brigham Young University, Provo, Utah, proposed by W. Lee Chambers; Irving Edward Hampe, Natural History Society of Maryland, 2103 North Bolton Street, Baltimore, Maryland, also proposed by W. Lee Chambers; and Miss Phyllis Jeanette Wiseman, of 277 Saint Pierre Road, Bel Air, Los Angeles, proposed by Kenneth Stager.

A letter from the Secretary of the Pacific Division of the American Association for the Advancement of Science was read. This indicated that the Pacific Division would meet in San Diego, June 20 to 25, 1938, and inquired regarding the Cooper Club's plans to be presented as an affiliated society at that meeting. A motion was made, seconded and carried that in view of the

Cooper Club's annual meeting in Fresno in April, we should not meet again as an organization in San Diego in June, but that any members who desired to present papers might join the program from the San Diego Society of Natural History.

Attention of the Club was called to a reprint of the Proceedings of the Ecological Society for 1936, sent to John McB. Robertson by A. O. Weese, Chairman of the Committee on the Preservation of Natural Conditions for the U. S. The reprint and a letter from Mr. Weese were placed on the table for consideration of anyone interested.

Mr. Robert T. Moore reported that Dr. Arthur A. Allen would be pleased to speak before the Cooper Club this spring. President Little indicated that in written communication with Dr. Allen the tentative date of April 21 or 22 was set.

The meeting was opened for election of officers for 1938. Dr. Miller announced the candidates proposed by the nominating committee as follows: Herbert N. McCoy, President; Sidney Peyton, Vice-President; Hildegard Howard, Secretary. The nominations were seconded, closed, and candidates elected.

Many members contributed bird observations, the mild winter having been conducive to more than the ordinary number of trips for this time of year. An eastern visitor, Mr. James Murdock, commented on his impressions of bird-life in California. He deplored the use of pole-traps in which he had found harmless predators, and asked if some action could be taken in the matter. Mr. Chambers explained his efforts in conservation and the difficulties involved.

Adjourned.—HILDEGARDE HOWARD, *Secretary*.

FEBRUARY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum, Exposition Park, on Tuesday, February 22, 1938, at 8 p. m., President McCoy presiding and about 125 members and guests present.

The minutes of the Southern Division for January were read and approved. Two applications for membership were read: James Murdock, 1240 West 2nd St., Los Angeles, proposed by George Cantwell; and Walter F. Nichols, 120 S. San Rafael Ave., Pasadena, by Harold Michener.

The secretary read an announcement from the Fresno Natural History Society regarding the annual meeting of the Cooper Club in April, indi-

cating that the objective of the field trip for Sunday, April 17, will be the Los Baños overflow lands, the leader John Tyler.

Further business was postponed until the end of the meeting, and Dr. Loye Miller was called upon for the evening's program. The motion pictures which were shown, entitled "A Herpetologist in Mexico", were taken by the late Dr. Mosauer, a former colleague of Dr. Miller's at the University of California at Los Angeles. The entire five reels concerned life in the vicinity of Acapulco, Mexico. The scientific party was housed on a sand-spit separating the open ocean from a lagoon bordered by mangrove forests. Although the film contained few actual views of birds, the concentration of the pictures around this one setting, together with Dr. Miller's accompanying remarks on his own experiences with bird life in a similar locality, afforded an unusually clear conception of the biotic conditions of the area.

The last two reels, which were in color, included photographs of the Roseate Spoonbill feeding at the water's edge, and in flight. There was also an exceptionally interesting view of the forested banks of the lagoon with great numbers of birds, particularly American Egret and Wood Ibis, on the shore and in the tree tops.

Following the program, members were invited to give recent observations. Mr. Sidney Peyton told of a report from a man in Santa Paula who believes that the coyote may be partly responsible for the disappearance of the California Condor. This man observed four Condors feeding upon the carcass of a deer, recently killed by hunters; a week later he found one Condor feeding, and observed a coyote in the vicinity; the following week he found the carcass and scattered feathers of the Condor—and a live coyote. Mr. Roland Ross took exception to the idea of the coyote, itself a scavenger, killing the Condor; suggested that the hunters who killed the deer may still have been in the region! He cited a recent occurrence known to him of a Condor on the Big Martin's Creek having been trapped and shot, and afterward devoured by coyotes.

There being no further observations, President McCoy announced the tentative programs for the next two months: For the regular March meeting Mr. Robert T. Moore will talk on his Mexican experiences and will probably show pictures. Dr. A. A. Allen is scheduled for the evening of April 22. Adjourned.—HILDEGARDE HOWARD, *Secretary*.

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OF THE
COOPER ORNITHOLOGICAL CLUB,
INCORPORATED

Revised to April 25, 1938

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J. S. Cooper	Junior Vice-President
George Willett	Secretary
Hilda W. Grinnell	Assistant Secretary
John McB. Robertson	Treasurer
W. Lee Chambers	Business Manager
Joseph Grinnell	Editor
Jean M. Linsdale	Associate Editor
Alden H. Miller	Associate Editor

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W. Lee Chambers	J. R. Pemberton
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Hilda Wood Grinnell, Corresponding Secretary

SOUTHERN DIVISION

Herbert N. McCoy, President
Sidney B. Peyton, Vice-President
Hildegard Howard, Secretary

MEMBERSHIP DIRECTORY

Year following address indicates date of election to membership. Year in parentheses indicates date of advancement to Honorary or Life Membership. [L.] = Life Member.

A

Abbott, Clinton G., Nat. Hist. Museum, Balboa Park, San Diego, Calif. 1921.
Abbott, Jacob Bates, P. O. Box 175, Altadena, Calif. 1930.
Adams, Benjamin, Weathersfield, Conn. 1920.
Adams, Mrs. E. L., 1712 Milan Ave., South Pasadena, Calif. 1936.
Addicott, Mrs. Alice Baldwin, 314 Stanford Ave., Palo Alto, Calif. 1934.
Albrecht, Milton Charles, English Dept., Univ. of Idaho, Moscow, Idaho, 1936.
Albro, Miss Mary Stephanie, 51 Canyon Road, Berkeley, Calif. 1927.
Aldrich, Elmer C., 6532 Pinehaven Road, Oakland, Calif. 1935.
Alexander, Miss Annie M., The Regillus, 19th and Jackson Sts., Oakland, Calif. 1908 (1923). [L].
Allen, Mrs. Amelia S., 37 Mosswood Road, Berkeley, Calif. 1913.
Allen, Dr. Arthur A., Fernow Hall, Ithaca, N. Y. 1911.
Allen, Walter I., 2057 Pepper Drive, Altadena, Calif. 1922.
Anderson, A. H., Rt. 4, Box 111, Tucson, Ariz. 1932.
Anderson, Kemuel, 949 S. Gramercy Place, Los Angeles, Calif. 1937.
Anderson, Dr. Rudolph M., Biol. Div. National Museum of Canada, Ottawa, Ontario, Canada, 1916.
Andrews, Arthur Allen, 362 Augustine St., Rochester, N. Y. 1927.
Andrews, Mrs. Chas. B., 1233 California St., San Francisco, Calif. 1937.
Anthony, A. W., 433 Nutmeg St., San Diego, Calif. 1921 (1932) [Honorary].
Applegarth, John H., Rt. No. 1, Box 448, Palo Alto, Calif. 1937.
Applegate, Elmer I., Dudley Herbarium, Stanford University, Calif. 1921.
Appleton, J. S., 1332 N. Citrus Ave., Hollywood, Calif. 1901 (1919) [L].
Arnold, John R., 204 Delaware St., Ithaca, N. Y. 1930.
Arnold, Leroy W., 3652 Richmond St., San Diego, Calif. 1929.
Arnold, Dr. Ralph, 812 Subway Terminal Bldg., Los Angeles, Calif. 1893.
Arvey, Dale, Museum Vertebrate Zoology, Berkeley, Calif. 1937.
Ashley, James F., 1166 Spruce St., Berkeley, Calif. 1933.

- Atkinson, Dr. Spencer R., 90 Madison Ave., Pasadena, Calif. 1925.
 Atkinson, W. L., 105 S. 14th St., San Jose, Calif. 1925.
 Atsatt, Miss Sarah R., 405 Hilgard Ave., Los Angeles, Calif. 1911.
 Austin, Oliver L., M.D., Tuckahoe, Westchester Co., N. Y. 1930.
 Austin, Oliver L., Jr., North Eastham, Mass., 1933.
 Austin, Paul G., 1508 N. Los Robles Ave., Pasadena, Calif. 1934.
 Axelrod, Daniel, 1224 Oxford St., Berkeley, Calif. 1930.
 Ayer, Mrs. N. Edward, 1300 Hillcrest Drive, Pomona, Calif. 1929.

B

- Bach, Robert S., 404 U. S. Court House, Portland, Ore. 1937.
 Badger, M. C., Rt. No. 1, Box 98, Santa Paula, Calif. 1915.
 Bailey, Alfred M., Museum Nat. Hist., Denver, Colo. 1917.
 Bailey, Bernard, San Marcos, Calif. 1911.
 Bailey, Florence M. (Mrs. Vernon), 1834 Kalorama Road, N.W., Washington, D. C. 1910 (1920) [L.] (1920) [Honorary].
 Bailey, H. H., 820 Alhambra Circle, Coral Gables, Florida. 1903.
 Bailey, Vernon, 1834 Kalorama Road, N.W., Washington, D. C. 1904.
 Baker, Jack D., 435 First St., Santa Rosa, Calif. 1930.
 Baker, John H., 1165 Fifth Ave., New York, N. Y. 1930.
 Baldwin, S. Prentiss, 11025 East Blvd., Cleveland, Ohio. 1920 (1920). [L.]
 Bales, Dr. B. R., 149 W. Main St., Circleville, Ohio. 1906.
 Ball, Wm. Howard, 1861 Ingleside Terrace, Washington, D. C. 1926.
 Ballard, Albert, 722 N. Harrison St., Stockton, Calif. 1929.
 Bamford, Mrs. G. L., 1428 Castro St., Oakland, Calif. 1918.
 Barker, Fred, Parkers Prairie, Minn. 1914.
 Barnes, Claude T., 359 10th Ave., Salt Lake City, Utah. 1915.
 Barnes, R. Magoon, Lacon, Ill. 1908 (1921). [L.]
 Barrington, George White, 2220 Carleton St., Berkeley, Calif. 1937.
 Barry, Miss Margaret A., Gen. Del., Stanford University, Calif. 1937.
 Bartram, John, R.R. 2, West Chester, Penn. 1926.
 Basner, Harry, 33 West 26th St., New York, N. Y. 1930.
 Bassett, Frank N., 722 N. Orange Drive, Los Angeles, Calif. 1919.
 Batchelder, Chas. F., 7 Kirkland St., Cambridge, Mass. 1910.
 Bates, Miss Josephine J., 240 E. Montana, Pasadena, Calif. 1921.
 Battles, Carroll David, 2347 S. Highland Ave., Los Angeles, Calif. 1924.
 Baumgardt, John, 143 N. McCadden Place, Los Angeles, Calif. 1937.
 Baynard, Oscar E., Box 104, Plant City, Florida. 1924.
 Bebb, William, The Park Gate House, Spencer, Ind. 1934.
 Beck, Rollo H., Planada, Merced Co., Calif. 1894 (1919). [L.]
 Beebe, William, 33 West 67th St., New York, N. Y. 1926.
 Behle, Dr. William Harroun, 457 East 3rd South St., Salt Lake City, Utah. 1933.
 Bell, Archibald Weir, 365 S. Hoover St., Los Angeles, Calif. 1936.
 Bello, Alice M. (Mrs. Victor), care Ross Grammar School, Ross, Calif. 1937.
 Bennett, Charles Barrows, 1122 University Ave., Berkeley, Calif. 1935.
 Bennett, Logan Johnson, Zool. Dept., Iowa State College, Ames, Iowa. 1936.
 Bennett, Walter W., care Fred A. Bennett, Arnolds Park, Iowa. 1934.
 Benson, Dr. Seth Bertram, Museum Vertebrate Zoology, Berkeley, Calif. 1927.
 Bent, A. C., 140 High St., Taunton, Mass. 1909 (1922) [L.] (1933) [Honorary].
 Betterley, Bertram O., 2005 2nd St., Eureka, Calif. 1922.
 Bigelow, Homer L., The Farm, Windy Row, Peterboro, N. H. 1910.
 Birkhead, Robert H., 1121 Kilson Drive, Santa Ana, Calif. 1928.
 Bishop, Dr. Louis B., 450 Bradford St., Pasadena, Calif. 1904 (1920). [L.]
 Blackwelder, Miss Martha Jean, Box NN, Stanford University, Calif. 1925.
 Blain, Dr. Alexander W., 2201 Jefferson Ave., Detroit, Mich. 1926.
 Blanchard, Miss Barbara D., Museum Vertebrate Zoology, Berkeley, Calif. 1930.
 Blanchard, Dean Hobbs, P. O. Box 680, Ojai, Calif. 1937.
 Blanks, Herbert Beverly, 845 Contra Costa Ave., Berkeley, Calif. 1933.
 Blayney, Miss Nita A., 920 O St., Fresno, Calif. 1911.
 Blickensderfer, Clark, 866 Grant St., Denver, Colo. 1922.
 Bolander, L. Ph., 464 Fair Oaks Ave., San Francisco, Calif. 1907.
 Bolt, Benj. F., 5300 Brookside Blvd., Kansas City, Mo. 1916.

- Bond, Dr. Richard M., 328 East Islay St., Santa Barbara, Calif. 1936.
- Book, Miss Lois Adelaide, 733 Franklin Ave., Columbus, Indiana. 1930.
- Borchert, Mrs. Georgia B., 2063½ 34th St., Sacramento, Calif. 1934.
- Borell, Adrey E., Soil Conservation Service, P. O. Box 1314, Albuquerque, New Mexico. 1918.
- Bowdish, B. S., Demarest, N. J. 1910.
- Boyers, L. Morgan, 1014 Mariposa Ave., Berkeley, Calif. 1931.
- Boyle, Ashby D., 1001 E. So. Temple St., Salt Lake City, Utah. 1915.
- Bracelin, Mrs. H. P., 2214 Vine St., Berkeley, Calif. 1930.
- Brady, J. C., De Poe Bay, Ore. 1926.
- Brand, Albert R., 9 East Ave., Ithaca, N. Y. 1933.
- Brandreth, Courtenay, Ossining, New York. 1925.
- Brandt, H. W., 11945 Carleton Road, Cleveland, Ohio. 1914.
- Brock, Donald Stewart, 5840 Seminary Court, Oakland, Calif. 1937.
- Brode, J. Stanley, Santa Monica Junior College, Santa Monica, Calif. 1934.
- Brooks, Major Allan, Okanagan Landing, B. C., Canada. 1906 (1920). [L.] (1936) [Honorary].
- Brooks, Prof. Sumner C., Dept. Zool., Univ. Calif., Berkeley, Calif. 1928.
- Brooks, Winthrop Sprague, 234 Berkeley St., Boston, Mass. 1923.
- Brown, Harrison, Hornby Island, B. C., Canada. 1938.
- Brown, Miss Nellie May, 10361 Fernglan Ave., Tujunga, Calif. 1922.
- Bruun, Charles A., 1510 Central Ave., Hot Springs, Arkansas. 1925.
- Bryan, Wm. A., Los Angeles Museum, Exposition Park, Los Angeles, Calif. 1921.
- Bryant, Charles A., 2650 Franklin St., San Francisco, Calif. 1922.
- Bryant, Dr. Harold C., National Park Service, Washington, D. C. 1910 (1920). [L.]
- Bryens, Oscar McKinley, McMillan, Luce Co., Mich. 1927.
- Buchanan, Miss Kathryn, Museum Vertebrate Zoology, Berkeley, Calif. 1937.
- Buckalew, Herbert, 120 Marshall St., Milford, Delaware. 1936.
- Buckman, George, 47 Bonnie Lane, Berkeley, Calif. 1927.
- Buhn, Mrs. Minnie, 3027 60th Ave., Oakland, Calif. 1921.
- Bunker, Paul F., 717 Spruce St., Berkeley, Calif. 1922.
- Bupp, Mrs. Mildred, 216 Maiden Lane, Montecello, Calif. 1936.
- Burleigh, Thomas D., 400 Union Bldg., 837 Gravier St., New Orleans, La. 1918.
- Burleson, Mrs. Donald, 2131 Selby Ave., West Los Angeles, Calif. 1935.
- Burnham, Dr. Clark, 2560 Bancroft Way, Berkeley, Calif. 1907.
- Burns, Frank L., Berwyn, Penn. 1909.
- Burt, Dr. William Henry, Museum of Zoology, Univ. of Michigan, Ann Arbor, Mich. 1928.
- Burtch, Verdi, Branchport, N. Y. 1910.

C

- Cahalane, Victor H., Wildlife Division, National Park Service, Washington, D. C. 1938.
- Cain, Brighton C., P. O. Box 796, Oakland, Calif. 1925.
- Calder, James A., Buena Park, Calif. 1917.
- Calder, Mrs. James A., Buena Park, Calif. 1926.
- Cameron, Allan D., 670 Williams Court, Sacramento St., Altadena, Calif. 1937.
- Camp, Dr. Chas. L., Mus. Paleontology, Univ. Calif., Berkeley, Calif. 1909.
- Campbell, Dr. Berry, Dept. Anatomy, Univ. Okla. Medical School, Oklahoma City, Okla. 1930.
- Cantwell, George G., 3602 Keystone Ave., Palms, Calif. 1915.
- Carey, Josh Harlan, 1315 4th St., Coeur d'Alene, Idaho. 1936.
- Carpenter, Mrs. Fred A., 1616 Sonoma Ave., Berkeley, Calif. 1930.
- Carpenter, Nelson K., 5014 Westminster Terrace, San Diego, Calif. 1901.
- Carriger, Henry W., 5185 Trask St., Oakland, Calif. 1895.
- Carson, Carl L., Arlington Ave. and Rincon Road, Berkeley, Calif. 1927.
- Carter, Miss Frances, 1626 LeRoy Ave., Berkeley, Calif. 1934.
- Carter, John H., Sod House Camp, B. F. No. 2, Burns, Ore. 1936.
- Castle, Gordon Benjamin, State University of Montana, Missoula, Mont. 1936.
- Chambers, Carl William, 1247 Lincoln Blvd., Santa Monica, Calif. 1936.
- Chambers, W. Lee, 2068 Escarpa Drive, Eagle Rock, Calif. 1897. (1919) [L.] (1936) [Honorary].
- Chaney, Dr. Ralph W., 1129 Keith Ave., Berkeley, Calif. 1923.
- Chapman, Dr. Frank M., Amer. Museum Nat. Hist., New York, N. Y. 1903.
- Chattin, Miss Susan E., Museum Vert. Zool., Univ. Calif., Berkeley, Calif. 1927.
- Cheney, E. S., 1825 Fifth Ave., Oakland, Calif. 1920.
- Cheney, Paul H., 20 Hartford Road, Manchester, Conn. 1936.
- Christy, Bayard H., 403 Frederick Ave., Sewickley, Penn. 1928.
- Clabaugh, Ernest Dwight, 44 Lenox Road, Berkeley, Calif. 1923 (1934). [L.]

- Clark, Prof. Harold W., Angwin, Napa County, Calif. 1925.
- Clary, Mrs. Ben Little, Coral Reef Ranch, Coachella, Calif. 1929.
- Clay, C. Irvin, Box 353, Eureka, Calif. 1910.
- Clay, Edward Eugene, 1112 Excelsior Ave., Oakland, Calif. 1936.
- Cockefair, Miss Ellen A., 4021 Howe St., Oakland, Calif. 1925.
- Coggins, Herbert L., 1157 Filbert St., San Francisco, Calif. 1910.
- Cohen, Donald A., 22728 Bay View Ave., Hayward, Calif. 1901.
- Colburn, A. E., 716 S. Flower St., Los Angeles, Calif. 1905 (1915). [L.]
- Cole, Elliot, Rt. 1, Box 74, Pasadena, Calif. 1929.
- Colton, Dr. Harold S., Museum of Northern Arizona, Flagstaff, Ariz. 1936.
- Coman, Edwin T., 434 Columbia Ave., Palo Alto, Calif. 1935.
- Compton, Lawrence V., Box 123, Safford, Ariz. 1927.
- Comstock, Dr. John, Los Angeles Museum, Exposition Park, Los Angeles, Calif. 1936.
- Connick, Florence R. (Mrs. A. E.), 18 Tanglewood Road, Berkeley, Calif. 1936.
- Conover, H. B., 6 Scott St., Chicago, Ill. 1924 (1924). [L.]
- Cook, Miss Inez, P. O. Box 203, Glendora, Calif. 1924.
- Cooke, Miss May T., Apt. 401, 1400 Fairmont St., N. W., Washington, D. C. 1918.
- Cooper, James S., 310 Howard Ave., Piedmont, Calif. 1903.
- Cottam, Clarence, U. S. Biological Survey, Washington, D. C. 1926.
- Coursen, G. Blair, 761 East 69th Place, Chicago, Ill. 1929.
- Courtright, Mrs. Mary L., 3 Elm Ave., Larkspur, Calif. 1936.
- Covel, Paul F., 3133 Jordan Road, Oakland, Calif. 1935.
- Cowan, Dr. Ian McTaggart, Provincial Museum, Victoria, B. C., Canada. 1937.
- Cowles, Dr. Raymond B., Univ. Calif. at Los Angeles, Los Angeles, Calif. 1928.
- Cozens, Harold H., 5331 Golden Gate Ave., Oakland, Calif. 1921.
- Crockett, Harry L., 76 Columbus Ave., Phoenix, Ariz. 1924.
- Crook, Compton, P. O. Box 1216, Williamsburg, Va. 1937.
- Crouch, James E., San Diego State College, San Diego, Calif. 1934.
- Culbertson, A. E., Fresno State College, Fresno, Calif. 1937.
- Culver, George B., Room 170 Admin. Bldg., Stanford University, Calif. 1921.
- Currier, Ed. S., 8541 N. Chicago Ave., St. Johns Sta., Portland, Ore. 1904.
- Curtis, Miss Elizabeth L., 5648 Beach Drive, Seattle, Wash. 1933.
- Cushing, John Eldridge, Jr., 2525 Webster St., San Francisco, Calif. 1934.
- Cushman, Lester H., So. Calif. Jr. College, Arlington, Calif. 1934.

D

- Dahl, Richard G., 5061 Congress Ave., Oakland, Calif. 1938.
- Dale, Frederick H., Museum Vertebrate Zoology, Berkeley, Calif. 1937.
- Danby, Durward E., R. 3, Box 502, Santa Cruz, Calif. 1927.
- Danforth, Charles G., 1680 College Ave., Stanford University, Calif. 1936.
- Danforth, Stuart Taylor, College of Agriculture, Box 541, Mayaguez, Porto Rico, 1925.
- Darling, Jay N., 2330 Terrace Drive, Des Moines, Iowa. 1934.
- Davey, Miss Charlotte E., State Agricultural College, Logan, Utah. 1935.
- Davis, David Edward, 721 Elmwood Ave., Wilmette, Ill. 1936.
- Davis, Dr. Frederick B., 6105 Hillegass Ave., Oakland, Calif. 1916.
- Davis, James Randall, 1915 Marin Ave., Berkeley, Calif. 1931.
- Davis, John, 2427 Durant Ave., Berkeley, Calif. 1938.
- Davis, John M., 227 Clark St., Eureka, Calif. 1908.
- Davis, Dr. Wm. B., 708 E. 29th St., Bryan, Texas. 1930.
- Day, Ezra R., 3789 S. 52nd West St., Salt Lake City, Utah. 1932.
- Dearborn, Dr. Ned, Hilton Village, Virginia. 1909.
- Decker, F. R., Kiona, Wash. 1913.
- DeGroot, Dudley S., 357 S. 13th St., San Jose, Calif. 1916.
- Delacour, Jean, Chateau de Clères, Seine Inferieure, France. 1927.
- De Lury, Ralph E., Dominion Observatory, Ottawa, Ontario, Canada. 1926.
- Denny, Judge Thomas C., Sonoma, Calif. 1924.
- DeTracy, Herbert Pierre, Bradley, Calif. 1936.
- Deuprey, Mrs. Munson, 1419 Solano Ave., Albany, Calif. 1935.
- Dexter, B. D., 2519 Ashby Ave., Berkeley, Calif. 1928.
- Dickey, Florence V. V. (Mrs. Donald R.), Twin Oaks Ranch, Ojai, Calif. 1923.
- Dille, Fred M., 822 Grand Ave., Nogales, Ariz. 1903.
- Dixon, James B., Rt. 1, Box 688, Escondido, Calif. 1924.
- Dixon, Joseph S., 1735 Allston Way, Berkeley, Calif. 1904.

Dixon, Ralph E., Star Route, Escondido, Calif. 1935.
 Dodge, Ernest Stanley, Peabody Museum, Salem, Mass. 1936.
 Dodge, Thomas Henry, Navajo Agency, Fort Defiance, Arizona. 1936.
 Dodson, Mrs. Leigh M., 1046 S. Holt Ave., Los Angeles, Calif. 1929.
 Doolittle, E. A., Box 44, Painesville, Ohio. 1918.
 Dougan, Miss Kathleen, 1829 Spruce St., Berkeley, Calif. 1936.
 DuBois, Alexander Dawes, R. 2, Christmas Lake Road, Excelsior, Minn. 1911.
 Du Bois, H. M., Rt. No. 1, Box 209A, Clackamas, Oregon. 1931.
 DuMont, Philip A., Sand Lake Waterfowl Refuge, Columbia, South Dakota. 1932.
 Dutton, Harry H., M.D., Fort Steilacoom, Wash. 1937.
 Dutton, Philip C., 65 High St., Stone Staffs, England. 1935.
 Dyer, Ernest I., 40 Selborne Drive, Piedmont, Calif. 1931.

E

Edge, Mrs. Charles Noel, 1200 Fifth Ave., New York, N. Y. 1932.
 Edge, Chester W., R. 3, Box 21, Healdsburg, Calif. 1930.
 Edge, Elton R., San Bernardino Valley Junior College, San Bernardino, Calif. 1932.
 Edson, J. M., 2210 Victor St., Bellingham, Wash. 1911.
 Edwards, Myrtle S. (Mrs. Harlan), 225 E. 11th St., Claremont, Calif. 1924.
 Eggleston, J. W., Junior College, Riverside, Calif. 1913 (1919). [L.]
 Ehmann, E. W., 37 Bellevue Ave., Piedmont, Calif. 1931.
 Einarsen, Arthur Skogman, Poultry Bldg., Corvallis, Oregon. 1936.
 Einarsson, Anna R. (Mrs. S.), 699 Santa Barbara Road, Berkeley, Calif. 1934.
 Eisenman, Roland G., 031 S. W. Woods St., Portland, Ore. 1927.
 Ellis, Ralph, 2420 Ridge Road, Berkeley, Calif. 1923 (1926). [L.]
 Ellison, Lincoln, 712 13th Ave. S., Minneapolis, Minn. 1937.
 Elmore, Louis A., 2002 Yolo Ave., Berkeley, Calif. 1935.
 Emerson, Guy, 40 West 11th St., Sta. O., New York, N. Y. 1936.
 Emerson, W. Otto, Palm Cottage, Hayward, Calif. 1901 (1921). [L.]
 Emilio, S. Gilbert, 7 Winter St., Salem, Mass. 1926.
 Emlen, John T., Jr., College of Agriculture, Davis, Calif. 1930.
 Erickson, Frank M., R. D. No. 3, Box 65, Salem, Oregon. 1931.
 Erickson, Dr. Mary M., Willamette University, Salem, Ore. 1930.
 Errington, Paul Lester, Insectary, Iowa State College, Ames, Iowa. 1932.
 Evins, Samuel Nesbitt, 188 14th St., N. E., Atlanta, Ga. 1929.
 Ewan, Joseph Andorfer, Dept. of Biology, Univ. of Colo., Boulder, Colo. 1937.
 Eyerdam, Walter J., 7531 19th St. N. E., Seattle, Wash. 1936.

F

Failing, Robert, 518 66th St., Oakland, Calif. 1933.
 Fargo, William G., 506 Union St., Jackson, Mich. 1928.
 Farley, Frank L., Camrose, Alberta, Canada. 1923.
 Farnsworth, Mrs. Ethel R., 453 Fairmont Ave., Oakland, Calif. 1936.
 Feltes, Charles H., 216 Ruberto St., Modesto, Calif. 1935.
 Ferguson, Mrs. Mary Van E., 1 Orchard Lane, Berkeley, Calif. 1936.
 Ferris, Reed W., Beaver, Oregon. 1931.
 Field, Clyde L., 2534 K Ave., National City, Calif. 1919.
 Figgins, J. D., The Britling, Lexington, Ky. 1925.
 Finley, William L., R. F. D. No. 10, Box 426A, Portland, Oregon. 1900.
 Fisher, Dr. A. K., Room 77, U. S. National Museum, Washington, D. C. 1904 (1924) [Honorary].
 Fisher, Miss Edna M., 2410 Fulton St., Berkeley, Calif. 1923.
 Fisher, Miss Elizabeth W., 2222 Spruce St., Philadelphia, Penn. 1910.
 Fisher, Prof. Walter K., Hopkins Marine Sta., Pacific Grove, Calif. 1900.
 Fitch, Dr. Henry Sheldon, U. S. Biological Survey, San Joaquin Experimental Range, O'Neals, Calif. 1933.
 Fleming, J. H., 267 Rusholme Road, Toronto, 4, Ontario, Canada. 1910.
 Flynn, Miss Helen, 1094 Keith Ave., Berkeley, Calif. 1920.
 Follett, W. I., 3501 Broadway, Oakland, Calif. 1926.
 Forester, Robert, 1803 S. Hobart Blvd., Los Angeles, Calif. 1938.
 Forrest, Earle R., 205 N. Main St., Washington, Penn. 1910.
 Fossler, Mary L., 550 N. Los Robles Ave., Pasadena, Calif. 1935.
 Fowler, Frederick H., 221 Kingsley Ave., Palo Alto, Calif. 1901.
 Frames, Mrs. Donald C., 1730 Middlefield Road, Palo Alto, Calif. 1934.

- Frazer, J. Thomas, Jr., 821 Summer St., Eureka, Calif. 1921.
 Frazier, J. F., 724 Proctor Place, Independence, Mo. 1930.
 French, Mrs. A. J., Carlton, Oregon. 1921.
 Fretwell, C. L. Elmhurst Apts., Ogden, Utah. 1936.
 Frick, G. A., 5922 Tipton Way, Los Angeles, Calif. 1929.
 Friedmann, Dr. Herbert, Div. Birds, U. S. National Museum, Washington, D. C. 1927.
 Friedrich, George W., 3029 Belmont Ave., Chicago, Ill. 1926.
 Fritz, Esther C. (Mrs. Emanuel), 102 The Up-lands, Berkeley, Calif. 1935.
 Frost, Wilfrid T., Crater Lake National Park, Fort Klamath, Ore. 1931.
 Fry, Walter, Three Rivers, Calif. 1934.
 Furniss, Owen Cecil, 2203 1st Ave. West, Prince Albert, Sask., Canada. 1936.

G

- Gabrielson, Ira N., Bureau of Biological Survey, Washington, D. C. 1919.
 Gallup, Frederick Norman, 142 W. 6th Ave., Escondido, Calif. 1921.
 Garber, Miss Lida J., 15 Tanglewood Road, Berkeley, Calif. 1923.
 Gardiner, Miss Elizabeth M., 1227 Paseo del Mar, San Pedro, Calif. 1936.
 Gardner, Dr. Leon L., 1815 Kilbourne Place, N. W., Washington, D. C. 1911-1916, 1926.
 Gault, Benj. T., Wheaton Health Home, Wheaton, Ill. 1905.
 Gausbeck, A. T., 50 Broadway, New York, N. Y. 1924.
 Gay, Harold S., 200 S. Atlantic Blvd., Alhambra, Calif. 1901.
 Geiselhart, Miss Josephine, Concord, Calif. 1920.
 Gerwick, Ben Clifford, Jr., 721 San Luis Road, Berkeley, Calif. 1935.
 Gibb, Andrew Shirra, 2664 Shasta Road, Berkeley, Calif. 1938.
 Gibson, John Herbert, 1027 Merced St., Berkeley, Calif. 1936.
 Giddings, Levi A., 772 Yale Ave., Salt Lake City, Utah. 1923.
 Gifford, Dr. Harold, 1620 Medical Arts Bldg., Omaha, Nebr. 1916.
 Gignoux, Claude, 3971 Clay St., San Francisco, Calif. 1919.
 Giles, Vivian, 909 Clay St., Ukiah, Calif. 1934.
 Gilliam, Miss Helen L., 473 Haddon Road, Oakland, Calif. 1937.
 Gilman, M. French, Banning, Calif. 1901.
 Gilmore, Raymond M., Museum Vertebrate Zoology, Berkeley, Calif. 1926.
 Gladding, Miss Hope Mehldau, 2592 Buena Vista Ave., Berkeley, Calif. 1934.

- Glassell, Steve A., 9533 Santa Monica Blvd., Beverly Hills, Calif. 1929.
 Gloyd, Dr. Howard K., Chicago Academy Sciences, 2001 N. Clark St., Chicago, Ill. 1937.
 Goethe, C. M., Capital Nat'l Bank Bldg., Sacramento, Calif. 1938.
 Goelitz, Walter A., 240-22 Little Neck Road, Douglaston, Long Island, N. Y. 1915 (1920). [L.]
 Goldman, Edward A., Biological Survey, Washington, D. C. 1901.
 Goldman, Luther, 1092 Keith Ave., Berkeley, Calif. 1937.
 Gordon, Kenneth L., Dept. Zool., State Agricultural College, Corvallis, Oregon. 1927.
 Graham, Hatch, 503 Hall of Justice, Los Angeles, Calif. 1937.
 Graham, J. Duncan, Box 27, Benicia, Calif. 1937.
 Grasett, Frank G., 535 Green Bay Road, Glen-coe, Ill. 1926.
 Green, Mrs. George L., 455 William St., Palo Alto, Calif. 1934.
 Gregory, Stephen S., Jr., Box N, Winnetka, Ill. 1924.
 Grimes, Samuel A., Rt. No. 5, Box 284F, Jacksonville, Florida. 1924.
 Grinnell, Hilda Wood (Mrs. Joseph), 2737 Forest Ave., Berkeley, Calif. 1912 (1921). [L.]
 Grinnell, Prof. Joseph, Museum Vert. Zoology, Univ. Calif., Berkeley, Calif. 1894 (1919). [L.]
 Giscom, Ludlow, Museum of Comparative Zoology, Cambridge, Mass. 1933.
 Gross, Prof. Alfred O., 11 Boody St., Brunswick, Maine. 1923.
 Guilo, Eastham, Papeete, Tahiti. 1938.
 Guion, George Seth, 1716 American Bank Bldg., New Orleans, La. 1911.
 Gunn, Miss Amy E., 2760 Green St., San Francisco, Calif. 1914.

H

- Hachisuka, The Marquess, Mita Shiba, Tokyo, Japan. 1928.
 Hackley, Mrs. Sadie Gilmore, 807 Waverly St., Palo Alto, Calif. 1934.
 Hadsall, Dr. Leo F., Fresno State College, Fresno, Calif. 1937.
 Haefner, Miss Emma, 2420 S. Atherton St., Berkeley, Calif. 1931.
 Hager, Miss Elizabeth, Fruitvale High School, R. F. D. No. 1, Grand Junction, Colo. 1931.
 Hague, Miss Florence S., Dept. Biol., Sweet Briar College, Sweet Briar, Virginia. 1925.
 Haley, Dr. George, P. O. Box 265, Berkeley, Calif. 1925.
 Hall, Edward M., P. O. Box 84, Whittier, Calif. 1937.
 Hall, Dr. E. Raymond, Museum Vertebrate Zoology, Univ. Calif., Berkeley, Calif. 1924.

- Halladay, Daniel S., 628 E. Chestnut Ave., Santa Ana, Calif. 1910.
- Halleck, Taylor H., Newport, Ore. 1923.
- Haller, Karl William, R. D. No. 1, Short Creek, West Virginia. 1936.
- Halloran, Arthur F., Pitkin, Colo. 1933.
- Hamlin, John W., 9 Bridge Road, Berkeley, Calif. 1936.
- Hampe, Irving Edward, Natural History Society of Maryland, 2103 North Bolton St., Baltimore, Md. 1938.
- Hand, Ralph L., 543 South 5th St., West, Missoula, Mont. 1927.
- Handlan, John Welty, Oglebay Park, Wheeling, West Virginia. 1935.
- Handley, Charles O., Blackburg, Virginia. 1927.
- Hann, H. H., 3171 N. E. 35th Place, Portland, Oregon. 1909.
- Hanna, Wilson C., 141 East F St., Colton, Calif. 1902 (1921). [L.]
- Hannum, Robert G., 3634 Hughes Ave., Palms, Calif. 1934.
- Hardy, Ross, 429 North Second East St., Price, Utah. 1938.
- Hargrave, Lyndon L., Museum of Northern Arizona, Flagstaff, Ariz. 1931.
- Hargreaves, W. Lawton, care Lakehurst Hotel, 1569 Jackson St., Oakland, Calif. 1937.
- Harper, Dr. Francis, 224 S. Chester Road, Swarthmore, Pa. 1920.
- Harriot, Samuel C., 200 W. 58th St., New York, N. Y. 1934.
- Harris, Mrs. Charles A., R. No. 1, Box 100, Carmel, Calif. 1930.
- Harris, Harry, 5234 Hermosa Ave., Eagle Rock, Los Angeles, Calif. 1914 (1919). [L.]
- Harrison, Ed. N., Box 324, Encinitas, Calif. 1931.
- Harrison, John W., Box 324, Encinitas, Calif. 1932.
- Hart, Cecil, 132 N. Third St., Montebello, Calif. 1920.
- Harter, Samuel G., Natural History Museum, Balboa Park, San Diego, Calif. 1927.
- Hartshorne, Dorothy C. (Mrs. Charles), 1124 East 54th St., Chicago, Ill. 1937.
- Hartung, Miss Esther Margaret, 124 Mill St., Grass Valley, Calif. 1923.
- Harvey, Miss Annie G., P. O. Box 735, Fresno, Calif. 1929.
- Harvey, Dr. Paul Atwood, 1515 Spruce St., Berkeley, Calif. 1938.
- Harwell, Charles Albert, Park Naturalist, Yosemite, Calif. 1925.
- Hatfield, Donald M., Division of Economic Zoology, Univ. of Minn., St. Paul, Minn. 1934.
- Hathaway, Harry S., Riverside and Thorne Aves., South Auburn, Cranston, R. I. 1912.
- Hatton, Mrs. Louise M., Corral de Tierra Route, Monterey, Calif. 1931.
- Havemeyer, Henry O., Mahwah, N. J. 1917.
- Hawbecker, Albert C., 34A Jefferson St., Watsonville, Calif. 1936.
- Hayward, C. Lynn, Dept. Zoology, Brigham Young University, Provo, Utah. 1938.
- Hazeltine, Karl Snyder, State College, San Jose, Calif. 1936.
- Head, Glen B., 337 Haskins St., Klamath Falls, Oregon. 1936.
- Heineman, O. J., 14 Bay View, Mill Valley, Calif. 1908.
- Heller, Edmund, Park Lodge, Golden Gate Park, San Francisco, Calif. 1894.
- Helme, Arthur H., 223 Bayview Terrace, Port Jefferson, N. Y. 1911.
- Helmuth, William Tod, 3rd, 667 Madison Ave., New York, N. Y. 1933.
- Hemphill, Donald Vincent, Pacific Union College, Angwin, Calif. 1937.
- Henderson, A. D., Belvedere, Alberta, Canada. 1923.
- Henderson, Walter C., 8 Magnolia Parkway, Chevy Chase, Md. 1918.
- Henne, Christopher, 3rd, 312 Grand Ave., South Pasadena, Calif. 1929.
- Henry, Wilbur V., Route 1, Box 381, Los Altos, Calif. 1934.
- Hersey, F. Seymour, Easton, Mass. 1915 (1920). [L.]
- Hersey, Merrick Fred, Box 734, Crockett, Calif. 1937.
- Hicks, Dr. Lawrence E., Dept. of Botany, Ohio State University, Columbus, Ohio. 1936 (1936). [L.]
- Hill, Harold Merrill, 329 Summit Ave., Redlands, Calif. 1935.
- Hilton, Dr. W. A., Pomona College, Claremont, Calif. 1921.
- Hinshaw, Thomas Doane, 1908 Scottwood Ave., Ann Arbor, Mich. 1931.
- Hinze, Miss Lucile, 813 S. Adams St., Glendale, Calif. 1929.
- Hoag, Miss Ena, 921 Fountain Ave., Pacific Grove, Calif. 1934.
- Hodgkins, Albert E., 347 E. Flora St., Stockton, Calif. 1929.
- Holland, Harold M., Box 515, Galesburg, Ill. 1901 (1920). [L.]
- Holman, F. C., Box 8, Camp Curry, Yosemite, Calif. 1914 (1928). [L.]
- Hooper, Emmet T., Museum Vertebrate Zoology, Berkeley, Calif. 1934.
- Hoover, Prof. Theodore J., Room 531, Engr. Bldg., Stanford University, Calif. 1898 (1916). [L.]
- Hopkins, Cranson L., 920 McKinley Ave., Oakland, Calif. 1930.
- Horn, E. E., 332 Giannini Hall, Univ. Calif., Berkeley, Calif. 1931.

- Horsfall, R. Bruce, 3835 S St. N. W., Washington, D. C. 1914.
 Howard, Dr. Hildegard, Los Angeles Museum, Exposition Park, Los Angeles, Calif. 1924.
 Howard, Walter E., College Park, Davis, Calif. 1938.
 Howard, William Johnson, 904 Grace Securities Bldg., Richmond, Va. 1938.
 Howell, Alfred Brazier, Dept. of Anatomy, Johns Hopkins Medical School, Baltimore, Md. 1908 (1915). [L.]
 Howell, Arthur H., 2919 S. Dakota Ave., Washington, D. C. 1916.
 Howitt, Miss Beatrice Fay, 1341 7th Ave., San Francisco, Calif. 1927.
 Howsley, Lucien B., 601 N. Broadway, Fresno, Calif. 1931.
 Howsley, Lucien R., 611 38th St., San Pedro, Calif. 1927.
 Hubbard, Douglass, 2010 Channing Way, Berkeley, Calif. 1937.
 Huber, Wharton, Academy Natural Sciences, 19th and The Parkway, Philadelphia, Penn. 1915.
 Huey, Laurence M., Natural History Museum, Balboa Park, San Diego, Calif. 1909 (1921). [L.]
 Hughes, George T., Box 153, Plainfield, N. J. 1927.
 Hungate, Prof. J. W., Eastern Washington College of Education, Cheney, Wash. 1924.
 Hunter, George, R. F. D. No. 1, Box 215, Salinas, Calif. 1930.
 Hunter, J. S., Box 482, San Mateo, Calif. 1903.
 Hurley, John B., 401 S. 17th St., Yakima, Wash. 1921.

I

- Illg, Paul, Pinole, Calif. 1937.
 Imler, Ralph H., 137 E. 8th Ave., Denver, Colo. 1936.
 Ingersoll, Albert M., 908 F St., San Diego, Calif. 1895 (1932). [Honorary].
 Ingles, Lloyd Glenn, Chico State College, Chico, Calif. 1936.
 Irvine, Milton Boyd, 626 N. Electric Ave., Alhambra, Calif. 1937.
 Isham, C. Bradley, 909 Valley Road, Upper Montclair, N. J. 1909.

J

- Jackson, Dr. Hartley H. T., Biological Survey, Washington, D. C. 1921.
 Jacobsen, W. C., 1341 43rd St., Sacramento, Calif. 1916.
 Jacot, Edouard C., Box 462, Prescott, Arizona. 1923.
 Jaeger, Edmund C., 4462 W. 6th St., Riverside, Calif. 1922.

- James, Harry C., 650 E. Mariposa St., Altadena, Calif. 1937.
 Jay, William, 113 Mayland St., Philadelphia, Penn. 1925.
 Jefcoat, Arthur W., care Pacific Gas & Electric Co., Paynes Creek, Calif. 1937.
 Jenkins, Hubert O., 2116 3rd Ave., Sacramento, Calif. 1933.
 Jenks, Randolph, Rancho Esperero, Univ. Sta., Tucson, Ariz. 1931.
 Jerrard, Robert Bruce, Garfield, Colorado. 1927.
 Jewett, Stanley G., 1404 Bidwell St., S. E., Portland, Ore. 1909.
 Johnson, Archibald, Rt. 2, Jamestown, North Dakota. 1934.
 Johnson, David H., Museum Vertebrate Zoology, Berkeley, Calif. 1937.
 Johnson, Miss Linnea M., P. O. Box 156, Turlock, Calif. 1936.
 Johnson, Dr. Myrtle E., 4647 55th St., San Diego, Calif. 1908.
 Jones, Berton F., 3406 Adell Court, Oakland, Calif. 1937.
 Jones, Dr. Lynds, 352 W. College St., Oberlin, Ohio. 1911.
 Jones, S. Paul, 509 West Ave. North, Waukesha, Wis. 1929.
 Jones, Victor E., Univ. of Idaho, Southern Branch, Pocatello, Idaho. 1938.
 Jordan, A. H. B., Everett, Wash. 1911.
 Jory, Mrs. Stafford L., 1370 Euclid Ave., Berkeley, Calif. 1936.

K

- Kalmbach, Edwin R., 2654 Forest Ave., Denver, Colorado. 1923.
 Keene, Herman Belden, 14 McKeveitt Hts., Santa Paula, Calif. 1937.
 Kellogg, Miss Louise, The Regillus, 19th and Jackson Sts., Oakland, Calif. 1911 (1927). [L.]
 Kellogg, Miss Mildred, 2232 Piedmont Ave., Berkeley, Calif. 1921.
 Kellogg, Ralph T., Silver City, N. M. 1916.
 Kelly, Junea W. (Mrs. G. Earle), 1311 Grand St., Alameda, Calif. 1918.
 Kelso, Leon, 241 Linden Ave., Ithaca, N. Y. 1929.
 Kendeigh, Dr. S. Charles, Experimental Zoology Laboratory, Univ. Illinois, Wright and Healy Sts., Champaign, Ill. 1932.
 Kennedy, Jean, 2550 Ellsworth St., Berkeley, Calif. 1937.
 Kenyon, Karl Walton, 454 Ravena St., La Jolla, Calif. 1934.
 Kerr, Alexander H., 345 S. Westlake Ave., Los Angeles, Calif. 1937.
 Keyes, Prof. Charles R., 323 Tenth Ave. South, Mt. Vernon, Iowa. 1900.

- Kibbe, Bessie W. (Mrs. A. S.), Div. Fish and Game, Ferry Bldg., San Francisco, Calif. 1917.
- Kiessling, Victor Ralph, 720 East Moreland St., Phoenix, Arizona. 1936.
- Killam, Alfred L., 30 Oval Road, Oakland, Calif. 1937.
- King, Benjamin H., 1215 Lakeshore Drive, Coeur d'Alene, Idaho, 1921.
- Kinsey, Eric Campbell, Box 76, Manor, Calif. 1933.
- Kirby, Prof. Harold, Jr., Dept. Zoology, Univ. Calif., Berkeley, Calif. 1930.
- Kirksey, Tom M., Biggs Field, El Paso, Texas. 1935.
- Kitchin, E. A., 4014 N. 35th St., Tacoma, Wash. 1935.
- Kittredge, Prof. Joseph, Jr., 231 Giannini Hall, Univ. Calif., Berkeley, Calif. 1936.
- Kloss, Phillips, 670 Woodmont Ave., Berkeley, Calif. 1929.
- Knapp, Elmer, Route 2, Troy, Penn. 1924.
- Knickerbocker, Chas. K., 410 N. Michigan Ave., Chicago, Ill. 1905.
- Kofoid, Prof. Chas. A., Dept. Zool., Univ. Calif., Berkeley, Calif. 1909.
- Kosby, Mrs. Helene, 2585 Louis Road, Palo Alto, Calif. 1937.
- Kraus, Douglas Lawrence, 92 Keene St., Providence, R. I. 1935.
- Kretzmann, Prof. Paul E., 801 De Mun Ave., St. Louis, Mo. 1914.
- Kuhn, Uhl R., 430 Wolf Ave., Chambersburg, Pa. 1935.
- Kuser, John Dryden, 30 Broad St., New York, N. Y. 1912.
- L**
- Labarthe, Jules, 21 Plaza Drive, Berkeley, Calif. 1914.
- Laing, Hamilton M., Comox, B. C., Canada. 1926.
- Lamb, Chester C., 235 W. 27th St., Los Angeles, Calif. 1899.
- Landberg, Robert L., Colorado Museum Nat. Hist., City Park, Denver, Colo. 1926.
- Lane, Geo. W., Morgan Hill, Calif. 1914.
- Langevin, Elmer, 325 South Broadway, Crookston, Minn. 1922.
- Landstroth, James H., P. O. Box 800, Silver City, New Mexico. 1922.
- Laskey, Amelia R. (Mrs. Fred C.), Graybar Lane, Nashville, Tenn. 1933.
- Lastreto, C. B., 260 California St., San Francisco, Calif. 1913.
- Law, Laura B. (Mrs. J. Eugene), 249 Oglethorpe St., N. W., Washington, D. C. 1915 (1920). [L.]
- Leavens, Mrs. Robert French, 1900 Yosemite Road, Berkeley, Calif. 1928.
- Leitch, Mrs. Mary F., The Wren Box, Bel Air, Maryland. 1929.
- Leland, Harry J., Wilkip Hotel, Wilshire and Kip Sts., Los Angeles, Calif. 1901.
- Leopold, Prof. Aldo, New Soils Bldg., Univ. Wisconsin, Madison, Wis. 1916.
- Leopold, Aldo Starker, Museum Vertebrate Zoology, Berkeley, Calif. 1938.
- Leti, Frank H., Field Museum Nat. Hist., Chicago, Ill. 1927.
- Lewis, Edward H., Box 2472, Honolulu, T. H. 1929.
- Lewis, Norman, Schuyler Heights, Lake George, N. Y. 1937.
- Lewis, Richard N., 2728 Belrose Ave., Berkeley, Calif. 1930.
- Ligon, J. Stokley, Box 950, Carlsbad, New Mexico. 1914.
- Lillie, Harry C., 411 S. Mariposa Ave., Los Angeles, Calif. 1930.
- Lincoln, Frederick C., Biological Survey, Washington, D. C. 1922.
- Linford, Jean Hulme, 449 Center Ave., Logan, Utah. 1936.
- Linsdale, Dr. Jean M., Museum Vertebrate Zoology, Univ. Calif., Berkeley, Calif. 1926.
- Little, Luther, 2187 Roanoke Road, San Marino, Calif. 1913 (1920). [L.]
- Little, Mrs. Patricia Anderson, 2228 Durant Ave., Berkeley, Calif. 1934.
- Littlejohn, Chase, 323 E. Brewster Ave., Redwood City, Calif. 1901.
- Lloyd, Hoyes, 582 Mariposa Ave., Rockcliffe Park, Ottawa, Canada. 1923.
- Locke, Samuel B., Izaak Walton League, 222 North Bank Drive, Chicago, Ill. 1931.
- Lodge, Fred S., 616 Investment Bldg., Washington, D. C. 1930.
- Lofberg, Mrs. Lila McKinley, Kernville, Calif. 1925.
- Long, William H., Jr., 1334 White St., Ann Arbor, Mich. 1937.
- Long, W. S., 1116 E. San Rafael Ave., Colorado Springs, Colo. 1936.
- Loof, Henry B., Oak Harbor, Wash. 1937.
- Loring, J. Alden, U. S. Army, Owego, Tioga Co., N. Y. 1914.
- Lory, Daisy M., 497 Forest St., Oakland, Calif. 1936.
- Lyon, William I., 124 Washington St., Waukegan, Ill. 1928.
- Mc**
- McAtee, W. L. Biological Survey, Washington, D. C. 1907.
- McBride, Everett F., 5513 Keniston Ave., Los Angeles, Calif. 1923.
- McCabe, Thomas T., 2620 Parker St., Berkeley, Calif. 1926.

- McClain, Andrew, Rt. 1, Box 72, Clovis, Calif. 1937.
- McClintock, Edwin H., 2448 Monticello Ave., Oakland, Calif. 1936.
- McCoskey, Dr. Grace, State Hospital, Stockton, Calif. 1936.
- McCoy, Frank J., Santa Maria Inn, Santa Maria, Calif. 1932.
- McCoy, Herbert N., 1226 Westchester Place, Los Angeles, Calif. 1928. [L.]
- McCracken, Dr. Isabel, Box 1545, Stanford University, Calif. 1933.
- McCreary, Otto, Agricultural Hall, Univ. Wyo., Laramie, Wyoming. 1928.
- McDonald, Floyd A., P. O. Box 283, Vista, Calif. 1936.
- McDonald, Mrs. James R., 2677 Larkin St., San Francisco, Calif. 1927 (1927). [L.]
- McGuire, Ignatius, 209 Guyot Hall, Princeton Univ., Princeton, N. J. 1929.
- McIlhenny, Edward Avery, Avery Island, La. 1934.
- McKee, Edwin D., Grand Canyon National Park, Grand Canyon, Ariz. 1933.
- McKnight, Edwin Thor, 201 Eye St., N. W., Miami, Okla. 1936.
- McLain, Robert B., Box 132, Hollywood, Calif. 1897.
- McLaughlin, Donald T., 807 N. El Dorado St., Stockton, Calif. 1930.
- McLean, Donald D., 101 E. St. James St., San Jose, Calif. 1916.
- McLeod, Boyd, New Mexico Military Academy, Roswell, New Mexico. 1937.
- McManus, William Reid, Memramcook, New Brunswick, Canada. 1931.
- M**
- Macnab, Prof. James A., Linfield College, McMinnville, Ore. 1935.
- Macneil, Sayre, 1004 Edison Bldg., 601 W. 5th St., Los Angeles, Calif. 1934.
- Mailliard, Ernest C., Federal Reserve Bank, San Francisco, Calif. 1909.
- Mailliard, Joseph, 1815 Vallejo St., San Francisco, Calif. 1895 (1920). [L.] (1924) [Honorary].
- Marburger, Clifford, Denver, Lancaster Co., Penn. 1925.
- Marsh, Vernon L., 5808 15th Ave., N. E., Seattle, Wash. 1933.
- Marshall, Dr. Arthur P., 778 Higuera St., San Luis Obispo, Calif. 1932.
- Marshall, Joe T., Jr., 1922 Yosemite Road, Berkeley, Calif. 1936.
- Marshall, William H., U. S. Biological Survey, Utah State College, Logan, Utah. 1937.
- Martin, E. Whitney, 525 Lincoln Ave., Palo Alto, Calif. 1937.
- Martin, Patrick W., View Royal, R. R. 1, Victoria, B. C., Canada. 1931.
- Mason, Dr. Herbert L., 1190 Sterling Ave., Berkeley, Calif. 1927.
- Massey, Herbert, Ivy Lea, Burnage Lane, Manchester 19, England. 1909.
- May, Dr. John B., South Main St., Cohasset, Mass. 1929.
- Mayr, Dr. Ernst, American Museum of Natural History, New York, N. Y. 1933.
- Mead, Mrs. Edwin B., 2618 Etna St., Berkeley, Calif. 1920.
- Meadows, Donald C., 640 Terraine Ave., Long Beach, Calif. 1919.
- Meehan, Mrs. Eunice M., Big Creek, Calif. 1928.
- Meredith, George S., Farmers and Merchants Savings Bank, Oakland, Calif. 1927.
- Merriam, Dr. C. Hart, 1919 16th St., N. W., Washington, D. C. (1909) [Honorary].
- Mershon, W. B., Saginaw, Mich. 1911 (1919). [L.]
- Michael, Chas. W., 637 Winona Ave., Pasadena, Calif. 1916.
- Michener, Harold, 418 N. Hudson Ave., Pasadena, Calif. 1924.
- Michener, Josephine R., 418 N. Hudson Ave., Pasadena, Calif. 1934.
- Middleton, R. J., Whitehall Road, Norristown, Penn. 1919.
- Mikesell, Mrs. H. B., 18 Ardmore Road, Berkeley, Calif. 1925.
- Miller, Dr. Alden Holmes, Museum Vertebrate Zoology, Univ. Calif., Berkeley, Calif. 1923.
- Miller, Prof. Loye Holmes, Univ. Calif. at Los Angeles, Los Angeles, Calif. 1905 (1936) [Honorary].
- Miller, Miss Mary Mann, 5928 Hayes Ave., Highland Park, Los Angeles, Calif. 1920.
- Miller, Dr. Robert C., Dept. Zool., Univ. Washington, Seattle, Wash. 1921.
- Miller, William Thomas, 1809 Bushnell Ave., South Pasadena, Calif. 1937.
- Mitchell, Dr. Walton I., 1644 Visalia St., Berkeley, Calif. 1909.
- Moeller, B. A., 2525 E. 37th St., Los Angeles, Calif. 1935.
- Moffitt, James, 1879 Broadway, San Francisco, Calif. 1917.
- Moll, Miss Leno, 3601 Trinity St., Eureka, Calif. 1937.
- Monk, Harry C., 3108 Long Blvd., Nashville, Tenn. 1925.
- Monson, Gale, Soil Conservation Service, Box 1151, Gallup, New Mexico. 1936.
- Moore, Miss Nellie, 122 Falcon Ave., Long Beach, Calif. 1915.
- Moore, Robert D., 744 Walnut Ave., Redlands, Calif. 1928.
- Moore, Robert T., R. D. No. 1, Box 28A, Pasadena, Calif. 1911.

Moore, Walter, 319 Newton Ave., Oakland, Calif. 1937.
 Moose, Rosa Lee, 3170 Valencia Drive, San Bernardino, Calif. 1937.
 Moran, R. B., 1335 Olive Lane, La Canada, Calif. 1897.
 More, R. L., 1905 Wilbarger St., Vernon, Texas. 1911.
 Morley, Prof. S. Griswold, 2635 Etna St., Berkeley, Calif. 1916.
 Morse, George W., 318 E. 9th St., Tulsa, Okla. 1922.
 Mowbray, Vincent, 5052 Fairfax Ave., Oakland, Calif. 1937.
 Mulford, Miss Alice Stewart, 1637 Spruce St., Berkeley, Calif. 1933.
 Mullen, James L., 1264 Logan Ave., Salt Lake City, Utah. 1915.
 Munro, J. A., Okanagan Landing, B. C., Canada. 1914.
 Murdock, James, 1240 W. 2nd St., Los Angeles, Calif. 1938.
 Murie, Adolph, Jackson, Wyo. 1935.
 Murie, Olaus J., Jackson, Wyoming. 1913.
 Myers, Mrs. Harriet W., 311 N. Ave. 66, Los Angeles, Calif. 1912.
 Myers, Miss Mabel Adelaide, 617 W. Center St., Anaheim, Calif. 1922.

N

Nace, Charles A., P. O. Box 148, Capitola, Calif. 1920 (1920). [L.]
 Nash, Herman W., Box 1224, Pueblo, Colo. 1922.
 Naumburg, Mrs. Walter W., American Museum Natural History, New York, N. Y. 1922.
 Neff, Johnson A., U. S. Biological Survey, P. O. Box 1317, Sacramento, Calif. 1920.
 Nelson, Arnold L., U. S. Biological Survey, Washington, D. C. 1932.
 Nelson, Mrs. Jean M., 1729 Spruce St., Berkeley, Calif. 1929.
 Nelson, Roy A., Livermore, Calif. 1925.
 Nice, Mrs. Margaret M., 5708 Kenwood Ave., Chicago, Ill. 1921.
 Nichols, Charles K., 212 Hamilton Road, Ridge-wood, N. J. 1936.
 Nichols, John T., American Museum Nat. Hist., New York, N. Y. 1909.
 Nichols, Walter F., 120 S. San Rafael Ave., Pasadena, Calif. 1938.
 Nicholson, Donald J., 1218 Greenwood Ave., Orlando, Fla. 1911.
 Nickelsen, Dr. H. C., 920 S. Broadway, Tacoma, Wash. 1935.
 Noack, Harry R., 309 Perry St., Oakland, Calif. 1901.
 Nokes, Dr. I. D., 1120 Rives-Strong Bldg., Los Angeles, Calif. 1914.

Nolan, Dr. Thomas B., U. S. Geological Survey, Washington, D. C. 1936.
 Nold, Jane, 83 Castro St., San Leandro, Calif. 1938.
 North, Chandler P., 68 Tamalpais Road, Berkeley, Calif. 1937.
 Norton, Arthur H., 22 Elm St., Portland, Maine. 1918.

O

Oberholser, Dr. Harry C., 2805 18th St., N. W., Washington, D. C. 1904.
 Oberlander, George T., 1735 Rose St., Berkeley, Calif. 1938.
 Olney, Marjorie, 1836 169th St., Moneta, Calif. 1937.
 O'Melveny, Stuart, 1233 Garfield Ave., South Pasadena, Calif. 1931.
 O'Roke, Dr. Earl C., School of Forestry, Univ. Mich., Ann Arbor, Michigan. 1929.
 Orr, Dr. Robert T., 759 31st Ave., San Francisco, Calif. 1931.
 Osgood, Dr. Wilfred H., Field Museum Nat. Hist., Chicago, Ill. 1893 (1927). [L.]
 Over, Elizabeth M., Museum Vertebrate Zoology, Berkeley, Calif. 1937.
 Owen, Virgil W., 1752 Hudson, Hollywood Sta., Los Angeles, Calif. 1896.
 Owre, Oscar, Jr., 2625 Newton Ave. South, Minneapolis, Minn. 1937.

P

Painton, Harry R., M.D., 652 Melville Ave., Palo Alto, Calif. 1893-97, 1936.
 Palmer, Miss Elizabeth Day, 1741 S. Harvard Blvd., Los Angeles, Calif. 1909.
 Palmer, Dr. R. H., Neptuno 234, Havana, Cuba. 1915.
 Palmer, Dr. Theodore S., 1939 Biltmore St., N. W., Washington, D. C. 1903 (1920). [L.] (1929) [Honorary].
 Pangburn, Clifford H., Chappaqua, New York. 1920.
 Paquette, Elmer, care M. C. Badger, Santa Paula, Calif. 1938.
 Parker, Edgar J., 1924 Onyx St., Eugene, Ore. 1932.
 Parker, Herbert, South Lancaster, Mass. 1911.
 Parmenter, Henry E., 1808 Vallejo St., San Francisco, Calif. 1916.
 Partin, J. L., 2151 Balsam Ave., Los Angeles, Calif. 1930.
 Patrick, Dr. Leon, Smith-Grote Bldg., Orange, Calif. 1931.
 Patterson, Mrs. Theresa Homet, 544 S. El Molino Ave., Pasadena, Calif. 1926 (1926). [L.]
 Paul, Prof. J. H., 4263 South 13th East, Salt Lake City, Utah. 1915.

- Paul, Lucius H., 424 Carter St., Rochester, N. Y. 1911.
- Payne, Ernest A., 836 West I Street, Ontario, Calif. 1934.
- Peabody, Rev. P. B., 2011 Park Ave., Topeka, Kans. 1904.
- Peake, Lionel A. McK., Quatsino, Vancouver Island, B. C., Canada. 1930.
- Pearse, Theed, Courtenay, B. C., Canada. 1927.
- Pearson, Dr. T. Gilbert, 2257 Loring Place, New York, N. Y. 1910.
- Pease, Charles A., 308 Vassar St., Berkeley, Calif. 1930.
- Peck, Prof. Morton E., 1552 Court St., Salem, Oregon. 1909.
- Peet, Dr. Max Minor, 2030 Hill St., Ann Arbor, Mich. 1937.
- Pemberton, J. R., 3031 North Lake Ave., Altadena, Calif. 1900 (1928). [L.]
- Pequegnat, Willis E., 405 Hilgard Ave., Univ. Calif. at Los Angeles, Los Angeles, Calif. 1937.
- Perkins, Samuel E., 3rd., 709 Inland Bank Bldg., Indianapolis, Ind. 1926.
- Perley, Mrs. Lyman O., 3848 Cass St., Omaha, Nebr. 1927 (1927). [L.]
- Peters, James L., Museum of Comparative Zoology, Cambridge, Mass. 1933.
- Peterson, Hans C., Box 96, Reedley, Calif. 1924.
- Peterson, James G., 2035 Olive St., San Jose, Calif. 1934.
- Pettingill, Dr. Olin Sewall, Dept. of Biology, Carleton College, Northfield, Minn. 1934.
- Peyton, Laurence, R. D. 2, Fillmore, Calif. 1909. (1922). [L.]
- Peyton, Marjorie, 10621 Wilkins Ave., Los Angeles, Calif. 1936.
- Peyton, Sidney B., R. D. 2, Fillmore, Calif. 1913 (1922). [L.]
- Phelps, Frank M., 312 Fifth St., Elyria, Ohio. 1912.
- Philipp, Frederick B., 150 William St., New York, N. Y. 1936.
- Philipp, P. B., 220 Broadway, New York, N. Y. 1911 (1920). [L.]
- Phillips, Allan R., 113 Olive Road, Tucson, Ariz. 1933.
- Phillips, Dr. John C., Knobfields, Wenham, Mass. 1911.
- Philp, Gordon G., 540 S. Lucerne Blvd., Los Angeles, Calif. 1936.
- Pickwell, Dr. Gayle B., State Teachers College, San Jose, Calif. 1928.
- Platford, Sidney D., 4166 Fifth Ave., Los Angeles, Calif. 1935.
- Pleas, Mrs. F. W., Woodside Route 1, Box 255, Redwood City, Calif. 1938.
- Poland, James Lloyd, 526 West Burke St., Martinsburg, West Virginia. 1936.
- Post, Miss Pearl E., 634 Glendale Ave., Prescott, Arizona. 1930.
- Potter, Miss Jessica A., 1118 Santee St., Los Angeles, Calif. 1922.
- Potter, Laurence B., Gower Ranch, Eastend, Sask., Canada. 1925.
- Pough, Richard H., National Assn. Audubon Societies, 1775 Broadway, New York, N. Y. 1926.
- Powell, Miss Helen, Women's Faculty Club, Univ. Calif., Berkeley, Calif. 1914 (1928). [L.]
- Powell, Walter N., Pinnacles National Monument, Pinnacles, Calif. 1935.
- Pratt, Miss Helen S., 2451 Ridge View, Eagle Rock, Calif. 1920.
- Preble, Edward A., 3027 Newark St., Washington, D. C. 1926.
- Presnall, Clifford C., 6335 Ridge Drive, Sta. A, Washington, D. C. 1930.
- Price, Mrs. Elizabeth H., Room 202, 465 Post St., San Francisco, Calif. 1932.
- Price, Dr. Guthrie R., 409 Hillcrest Blvd., Monrovia, Calif. 1934.
- Price, John B., 532 Alvarado Rd., Stanford University, Calif. 1926.
- Prill, Dr. A. G., Scio, Ore. 1921.
- Pringle, Miss Cornelia C., 1816 Vallejo St., San Francisco, Calif. 1915 (1921). [L.]
- Provost, Maurice W., 2527 Channing Way, Berkeley, Calif. 1938.
- Pursell, Wm. McLain, 511 Neilson St., Berkeley, Calif. 1926.

Q

- Quaintance, Charles W., 114 Eddy St., Ithaca, N. Y. 1934.
- Quick, Alice (Mrs. Clarence), 920 Ordway St., Berkeley, Calif. 1937.
- Quigley, Raymond, Jr., P. O. Box 445, Pico, Calif. 1937.
- Quillin, Roy W., 422 West Kings Highway, San Antonio, Texas. 1921.

R

- Racey, Kenneth, 3262 West First Ave., Vancouver, B. C., Canada. 1934.
- Randall, Mrs. W. S., 4424 Belclair Ave., Dallas, Texas. 1929.
- Randolph, Miss Flora A., 360 42nd St., Oakland, Calif. 1907.
- Ransom, Webster H., 708 W. 20th Ave., Spokane, Wash. 1921.
- Rathbun, S. F., 906 Summit Ave., Seattle, Wash. 1904.
- Rattenbury, Mrs. Clifton F., Box 481, Dixon, Calif. 1937.
- Ray, Milton S., 2901 Broadway, San Francisco, Calif. 1899.
- Reid, Miss Lea, Box 565, Redwood City, Calif. 1934.

- Reif, Mrs. Vivian, 2033 Hearst Ave., Berkeley, Calif. 1928.
- Reis, C. Oscar, 646 Juanita Ave., Los Angeles, Calif. 1917.
- Reuss, Alfred H., Jr., 12910 S. Mozart St., Blue Island, Ill. 1938.
- Rett, Egmont Z., Museum of Natural History, Santa Barbara, Calif. 1937.
- Reynolds, Dr. T. Eric, Franklin Bldg., Oakland, Calif. 1934.
- Rich, Dr. Guy C., 1820 El Cerrito Place, Hollywood, Calif. 1911.
- Rich, Prof. Willis H., 442 Jordan Hall, Stanford University, Calif. 1934.
- Richards, Dr. W. T., 2122 E. Henry St., Savannah, Ga. 1908.
- Richardson, Carl, Rt. 2, Box 443, Klamath Falls, Ore. 1925.
- Richardson, Frank, Museum Vertebrate Zoology, Berkeley, Calif. 1935.
- Richardson, W. D., 4215 Prairie Ave., Chicago, Ill. 1918.
- Richardson, William, care Walter L. Richardson, R. D. 2, Box 1170, Porterville, Calif. 1925.
- Richmond, Watts L., 24 Beard Ave., Buffalo, N. Y. 1930.
- Richter, Fred O., 4282 La Salle Ave., Culver City, Calif. 1935.
- Ridgway, John L., 635 N. Pacific Ave., Glendale, Calif. 1926.
- Rigden, Mrs. Allace M., 424 Harriet Ave., Palo Alto, Calif. 1934.
- Riley, J. H., U. S. National Museum, Washington, D. C. 1909.
- Rinehart, Miss Amy, 1155 East 14th St., Oakland, Calif. 1927.
- Rishel, John B., Barnum School, W. 5th Ave. and Hooker St., Denver, Colo. 1925.
- Ritter, Prof. Wm. E., Museum Vertebrate Zoology, Univ. Calif., Berkeley, Calif. 1901.
- Roberts, Dr. Thomas S., Museum Nat. History, Univ. Minnesota, Minneapolis, Minn. 1909.
- Robertson, Howard, 157 Wilton Drive, Los Angeles, Calif. 1896. (1926). [L.]
- Robertson, John McB., Buena Park, Calif. 1913.
- Robertson, Mrs. John McB., Buena Park, Calif. 1920.
- Robinson, William Stewart, 2795 McConnell Drive, Palms Sta., Los Angeles, Calif. 1935.
- Rodgers, Thomas Lathan, Museum Vertebrate Zoology, Berkeley, Calif. 1937.
- Roe, Mrs. E. D., 221A Douglas St., San Francisco, Calif. 1919.
- Rogers, Irl, 402 Alturas Ave., Modesto, Calif. 1935.
- Ross, Hollis T., 109 S. 3rd St., Lewisburg, Penn. 1936.
- Ross, Roland C., 1820 Bushnell Ave., South Pasadena, Calif. 1920.
- Roullard, Fred P., Court House, Fresno, Calif. 1936.
- Rowan, Prof. William, Dept. Zool., Univ. Alberta, Edmonton, Canada. 1921.
- Rowley, John Stuart, 424 N. Valencia St., Alhambra, Calif. 1928.
- Rush, Miss Lora G., 1607 Walnut St., Berkeley, Calif. 1920.
- Russell, Ward C., Museum Vertebrate Zoology, Berkeley, Calif. 1930.
- Rust, Henry J., Box 683, Coeur d'Alene, Idaho. 1911.

S

- Sampson, Walter B., 1005 N. San Joaquin St., Stockton, Calif. 1894.
- Sampson, W. F., care Bay Transport Co., Pier No. 1, San Francisco, Calif. 1926. (1928). [L.]
- Sanford, Dr. Leonard C., 245 Whitney Ave., New Haven, Conn. 1915.
- Sanford, Louis A., Milford, Utah. 1931.
- Santee, Richard Compton, 432 Midway Ave., San Mateo, Calif. 1938.
- Sargent, Grace Tompkins (Mrs. M. C.), Scripps Institution Oceanography, La Jolla, Calif. 1938.
- Saunders, Aretas A., 48 Longview Ave., Fairfield, Conn. 1909.
- Saunders, Prof. Frederick A., 8 Berkeley Place, Cambridge, Mass. 1936.
- Saunders, George B., 562 Custom House, Denver, Colo. 1936.
- Saunders, Mrs. Kenneth, High Acres, Berkeley, Calif. 1934.
- Saunders, W. E., London, Ont., Canada. 1910.
- Savage, Mrs. H. G., 874 S. 11th St., Marshfield, Ore. 1936.
- Savage, James, Buffalo Athletic Club, Buffalo, N. Y. 1937.
- Savage, James C., 316 N. Ave. 66, Los Angeles, Calif. 1938.
- Saylor, Lawrence W., U. S. Biological Survey, Washington, D. C. 1937.
- Schaefer, Oscar F., 724 Woodbine Ave., Rochester, N. Y. 1917.
- Scheffer, Theodore H., P. O. Box 307, Puyallup, Wash. 1933.
- Schenck, Sara M. (Mrs. W. Egbert), Twentynine Palms, Calif. 1924.
- Schneider, Fred A., care Warren Dried Fruit Co., San Jose, Calif. 1901.
- Schneider, J. J., 141 Venetian Drive, Long Beach, Calif. 1899.
- Schorger, A. W., 168 N. Prospect Ave., Madison, Wis. 1928.
- Schulz, Walter G., 5426 Boyd Ave., Oakland, Calif. 1936.
- Schwerin, Mrs. Lotta Bean, Hotel Solano, Vallejo, Calif. 1933.
- Sebastian, Mrs. Irene, 6838 Sunset Blvd., Hollywood, Calif. 1938.

- Sefton, J. W., Jr., 638 F St., San Diego, Calif. 1923.
- Seghetti, Libero, Eatonville, Wash. 1936.
- Seibert, Milton Lewis, 4649 Redding St., Oakland, Calif. 1937.
- Selle, Raymond M., 1562 Munson Ave., Los Angeles, Calif. 1936.
- Sharp, Clarence S., Box 32, Escondido, Calif. 1902.
- Shaw, Dr. W. T., 1602 Cambridge Ave., Fresno, Calif. 1911.
- Shearer, Dr. A. R., Mont Belvieu, Chambers Co., Texas. 1928.
- Sheffler, W. J., 4731 Angeles Vista Blvd., Los Angeles, Calif. 1930. (1937) [L.]
- Sheldon, Mrs. Dorothy Dean, Women's Faculty Club, Berkeley, Calif. 1936.
- Shelton, A. C., 107 Upland Ave., Newton Highlands, Mass. 1934.
- Shepherd, Mrs. Hattie E., 114 W. Palm Ave., Redlands, Calif. 1921.
- Sherman, Miss Althea R., Route 2, National, via McGregor, Iowa. 1911 (1916). [L.]
- Sherwood, John W., Rt. 1, Box 1070, Salinas, Calif. 1923.
- Shiras, George, 3rd, 4530 Klinge, Washington, D. C. 1914.
- Sibley, Charles G., 6524 Dana St., Oakland, Calif. 1938.
- Silliman, Edmund N., 36 Oak St., Salinas, Calif. 1918.
- Silliman, O. P., 225 West Alisal St., Salinas, Calif. 1893. (1937). [L.]
- Silverstone, Dr. Dave, 317 N. Larchmont Blvd., Los Angeles, Calif. 1929.
- Simpson, Gene M., 744 N. 11 St., Corvallis, Ore. 1930.
- Sims, Mrs. R. M., 36 Hillcrest Road, Berkeley, Calif. 1933.
- Skillen, Donald R., Rt. 1, Box 65, Pasadena, Calif. 1927.
- Skinner, E. H., 2122 Waltonia Drive, Montrose, Calif. 1927.
- Skinner, M. P., 1316 Harding Ave., Long Beach, Calif. 1915 (1920). [L.]
- Sloanaker, Jos. L., 1117 Maxwell Ave., Spokane, Washington. 1910.
- Smiley, Dwight C., Box 261, Grand Canyon, Ariz. 1936.
- Smith, Allyn G., 722 Santa Barbara Road, Berkeley, Calif. 1909.
- Smith, Anna Margaret (Mrs. Otis H.), 89 Elm Ave., San Anselmo, Calif. 1934.
- Smith, Austin P., Zarcero, Costa Rica. 1907.
- Smith, Clarence F., U. S. Biological Survey, Washington, D. C. 1928.
- Smith, C. R., 563 42nd Ave., San Francisco, Calif. 1917.
- Smith, Mrs. Elizabeth Burnell, 1037 N. Stanley Ave., Cole Branch, Los Angeles, Calif. 1921.
- Smith, Miss Emily, Route 1, Box 93, Los Gatos, Calif. 1924.
- Smith, Horace G., 2918 Lafayette St., Denver, Colo. 1914.
- Smith, Miss Josephine E., 51 Canyon Road, Berkeley, Calif. 1928.
- Smith, Loris Philbrick, 2017 108th Ave., Oakland, Calif. 1930.
- Smith, Napier, care Bank of Montreal, 9 Waterloo Place, Pall Mall, London, S. W. 1, England. 1919.
- Smith, Miss Natasha D., 2203 Piedmont Ave., Berkeley, Calif. 1937.
- Snell, Charles H., Box 101, Red Deer, Alberta, Canada. 1926.
- Snyder, Prof. J. O., 542 Alvarado Row, Stanford University, Calif. 1900.
- Snyder, L. L., Royal Ontario Museum of Zoology, Toronto, Ont., Canada. 1924.
- Soper, J. Dewey, 827 Riverwood Ave., Fort Garry, Winnipeg, Manitoba, Canada. 1937.
- Spaulding, Prof. M. Herrick, State Agricultural College, Bozeman, Mont. 1918.
- Sperr, Dana, 335 Newton Ave., Oakland, Calif. 1936.
- Sprinkle, Charles R., Conrad, Montana. 1936.
- Sprot, George Doveton, Cobble Hill, Vancouver Island, B. C., Canada. 1923.
- Stager, Kenneth E., 4300 Budlong Ave., Los Angeles, Calif. 1935.
- Stanley, Emerson W., 1813 Wilshire Blvd., Santa Monica, Calif. 1935.
- Stannard, Carlos, Rt. No. 1, Box 1178, Phoenix, Arizona. 1935.
- Stansell, S. S., 324 Naylor Ave., Taft, Calif. 1925.
- Stedman, Miss Clara M., 3871 Howe St., Oakland, Calif. 1929.
- Steele, Ed. S., Box 21, North San Diego, Calif. 1926.
- Steinbeck, Wm. P., 611 Bristol Ave., Stockton, Calif. 1897.
- Stephens, Mrs. Albert Blasdel, 1695 Filbert St., San Francisco, Calif. 1934.
- Stephens, John R., 166 N. McCadden Place, Los Angeles, Calif. 1937.
- Stephens, Prof. T. C., Morningside College, Sioux City, Iowa. 1914.
- Stevens, Laurence, 918 E. Haley St., Santa Barbara, Calif. 1930.
- Stevenson, James O., Wild Life Division, National Park Service, Washington, D. C. 1928.
- Stewart, Paul A., Leetonia, Ohio. 1920.
- Stillwell, Jerry E., 7460 San Benito Way, Dallas, Texas. 1936.
- Stitt, James L., Chowchilla, Calif. 1936.
- Stoddard, H. L., Sherwood Plantation, Thomasville, Ga. 1914.
- Stone, Harry Herbert, Jr., P. O. Box 101, Sturbridge, Mass. 1925.
- Stone, Dr. Witmer, Academy Nat. Sciences, Logan Square, Philadelphia, Penn. 1924.

- Stoner, Emerson A., Box 444, Benicia, Calif. 1918.
- Stoodley, Dr. Gerald F., 752 Santa Barbara Road, Berkeley, Calif. 1934.
- Storer, Prof. Tracy I., University Farm, Davis, Calif. 1910.
- Streator, Clark P., 229 Otis St., Santa Cruz, Calif. 1919.
- Sturgeon, Jack, 3022 Pleitner Ave., Oakland, Calif. 1936.
- Suffel, Shumway, 1105 N. Holliston Ave., Pasadena, Calif. 1926.
- Sugden, Dr. John W., 1743 Yale Ave., Salt Lake City, Utah. 1936.
- Sumner, E. L., Box 188, Menlo Park, Calif. 1930.
- Sumner, E. L., Jr., Box 188, Menlo Park, Calif. 1924.
- Sufhard, James G., 832 Ohio Ave., Long Beach, Calif. 1938.
- Sutton, Dr. George M., Pebble Hearths, Bethany, West Virginia. 1924.
- Swanson, Gustav, University Farm, Univ. Minn., St. Paul, Minn. 1928.
- Swarth, Morton Themmen, 2800 Prince St., Berkeley, Calif. 1936.
- Swenk, Prof. Myron H., 1410 N. 37th St., Lincoln, Nebraska. 1916.
- T**
- Taber, F. Wallace, 2593 Life Sciences Bldg., Univ. Calif., Berkeley, Calif. 1938.
- Taber, Wendell, 3 Mercer Circle, Cambridge, Mass. 1935.
- Tanner, Orey, 5019 Constance St., New Orleans, La. 1935.
- Tanner, Prof. V. M., Brigham Young Univ., Provo, Utah. 1919.
- Tate, James, Route 1, Ontario, Calif. 1934.
- Taverner, P. A., National Museum, Ottawa, Ont., Canada. 1909.
- Taylor, Miss Grace M., 170 Vernon Terrace, Oakland, Calif. 1932.
- Taylor, Mrs. H. J., 900 Santa Barbara Road, Berkeley, Calif. 1920.
- Taylor, Dr. Lewis Walter, Poultry Division, Univ. Calif., Berkeley, Calif. 1931.
- Taylor, Robert, 4033 Coolidge Ave., Oakland, Calif. 1930.
- Taylor, Dr. Walter P., College Station, Texas. 1905.
- Teachenor, Dix, 1020 W. 61st St., Kansas City, Missouri. 1922.
- Terry, Mrs. Anne B., St. Cloud, Minn. 1937.
- Test, Frederick H., Museum Vertebrate Zoology, Univ. Calif., Berkeley, Calif. 1936.
- Test, Dr. Louis A., 511 Russell St., West Lafayette, Ind. 1930.
- Thompson, Ben H., 3034 P St., N. W., Washington, D. C. 1931.
- Thomson, Miss Isabel A., 5939 Shafter Ave., Oakland, Calif. 1918.
- Thorne, Mrs. Wm. V. S., 810 5th Ave., New York, N. Y. 1927 (1928). [L.]
- Thorpe, William H., Jesus College, Cambridge, England. 1928.
- Todd, W. E. Clyde, Carnegie Museum, Pittsburgh, Penn. 1909.
- Tolman, Cyrus F., Jr., 506 Mayfield Ave., Stanford University, Calif. 1933.
- Tonkin, George, 207 Federal Bldg., Des Moines, Iowa. 1920.
- Towle, Robert Edgar, Malheur Migratory Waterfowl Refuge, Burns, Ore. 1936.
- Trask, Parker D., U. S. Geological Survey, Washington, D. C. 1934.
- Treganza, A. O., P. O. Box 104, Lemon Grove, San Diego Co., Calif. 1907.
- Trescot, E. B., R. D. 4, Box 357, Petaluma, Calif. 1915.
- Trost, Henry, 475 29th St., San Francisco, Calif. 1924.
- Trouslot, R. B., Walnut Creek, Calif. 1936.
- Troxell, Mrs. Inez Dorsey, 636 Coventry Road, Berkeley, Calif. 1933.
- True, Gordon H., Jr., No. 1 Belmont Ave., San Francisco, Calif. 1937.
- Tucker, Mrs. Carll, Mt. Kisco, New York, 1927 (1931). [L.]
- Tucker, Nion R., 111 Sutter St., San Francisco, Calif. 1929.
- Tufts, Robie W., Wolfville, Nova Scotia, Canada. 1937.
- Turnbull, James Douglas, 2065 48th Ave. W., Vancouver, B. C., Canada. 1923.
- Turner, Lovett Thomas, Box 981, Emmett, Idaho. 1937.
- Twining, Howard, 6160 Acacia Ave., Oakland, Calif. 1934.
- Twisselman, William H., 415 Capitol St., Salinas, Calif. 1935.
- Tyler, John G., 1115 Thorne Ave., Fresno, Calif. 1905 (1920). [L.]
- Tyler, Dr. Winsor M., 112 Pinckney St., Boston, Mass. 1914.
- U**
- Uhler, Francis Morey, Biological Survey, Washington, D. C. 1928.
- Unglish, W. E., Gilroy, Calif. 1910.
- Urner, Charles Anderson, 596 Westminster Ave., Elizabeth, N. J. 1925.
- V**
- Vandervort, Charles C., Laceyville, Pa. 1937.
- Van Rossem, Adriaan J., Calif. Institute Technology, Pasadena, Calif. 1909.
- Van Tyne, Dr. Josselyn, Museum of Zoology, Ann Arbor, Mich. 1931.
- Vargas, Glen, Route 3, Hayward, Calif. 1933.
- Verges, Eugene M., 1126 Beacon St., Brookline, Mass. 1931.
- Vignos, Miss Blanche, 915 S. Carondelet St., Los Angeles, Calif. 1926.

- Von Bloeker, Jack C., Museum Vertebrate Zoology, Berkeley, Calif. 1927.
 Vorce, Kenneth Emory, 223 Darlington Ave., Buena Park, Calif. 1937.
 Vorhies, Prof. Chas. T., Univ. Arizona, Tucson, Ariz. 1916.

W

- Walker, Alex, Route A, Box 267, Tillamook, Oregon. 1911.
 Walker, Ernest P., Apt. 103, 3016 Tilden St., Washington, D. C. 1910.
 Walkinshaw, Lawrence Harvey, D.D.S., 1421½ W. Michigan Ave., Battle Creek, Mich. 1934.
 Wallace, Robert Browne, 3213 Oakland, Ames, Iowa. 1936.
 Wanzer, James Olin, Agness, Curry Co., Oregon. 1922.
 Warburton, Stanton, Jr., 3516 North 33rd St., Tacoma, Wash. 1917-19, 1938.
 Warmer, Charles A., 412 W. 6th St., Los Angeles, Calif. 1920.
 Warren, Edward R., 1511 Wood Ave., Colorado Springs, Colo. 1909.
 Warrington, Henry, Jackson, Calif. 1927.
 Watson, Frank G., 31 Clermont Lane, Ladue Village, St. Louis, Mo. 1934.
 Watson, Miss Maybelle E., Box 303, Sunland, Calif. 1938.
 Watson, Dr. S. A., Whittier College, Whittier, Calif. 1929.
 Watters, Robinson C., P. O. Box 298, Cambridge, Md. 1938.
 Webb, William Griffin, Deep Springs, Calif. 1936.
 Weber, Orlando F., Jr., Mt. Kisco, New York, 1936.
 Webster, Frederick S., 555 N. Harvard Blvd., Los Angeles, Calif. 1925.
 Wegforth, Dr. Harry M., Zool. Soc. of San Diego, Balboa Park, San Diego, Calif. 1920.
 Weiser, Charles S., 1901 East Market St., York, Pa. 1920.
 Wendle, Joseph, Bowron Lake, Barkerville, B. C., Canada. 1926.
 Werner, Miss Selma, Hotel Carlton, 1075 Sutter St., San Francisco, Calif. 1925.
 Wetherbee, Mrs. Kenneth, 11 Dallas St., Worcester, Mass. 1931.
 Wetherill, Milton, Kayenta, Arizona. 1934.
 Wetmore, Dr. Alexander, U. S. National Museum, Washington, D. C. 1909 (1927). [L.]
 Weydemeyer, Winton, Fortine, Montana. 1926.
 Weyl, Edward S., 6506 Lincoln Drive, Mt. Airy, Philadelphia, Penn. 1929.
 Whilton, Emery M., Hotel Tulare, Tulare, Calif. 1934.
 White, Ed. F. G., 185 Wurtenburg St., Ottawa, Canada. 1930.
 White, Francis B., Concord, N. H. 1926.
 Whitney, Clarence W., 433 California St., San Francisco, Calif. 1927.
 Widmann, Berthold, 4621 Wesley Ave., Los Angeles, Calif. 1923.
 Wilder, Melvin D., P. O. Box 642, Santa Cruz, Calif. 1928.
 Willard, B. G., 51 Fresh Pond Parkway, Cambridge, Mass. 1910.
 Willett, George, Los Angeles Museum, Exposition Park, Los Angeles, Calif. 1905.
 Williams, John R., 801 W. Nevada St., Urbana, Ill. 1935.
 Williams, Laidlaw O., P. O. Box 453, Carmel, Calif. 1925.
 Williams, Miss Olive E., R. D. No. 2, Puente, Calif. 1932.
 Wilson, Dr. Paul T., Marin Junior College, Kentfield, Calif. 1937.
 Wilson, W. Warner, Box 128, Davis, Calif. 1929.
 Wing, Dr. Leonard William, Box 264, Norris, Tenn. 1935.
 Winson, J. W., Box 642, Sumas, Wash. 1925.
 Wiseman, Philip Kenneth, Jr., 277 Saint Pierre Road, Bel Air, Los Angeles, Calif. 1938.
 Wiseman, Phyllis Jeanette, 227 Saint Pierre Road, Bel Air, Los Angeles, Calif. 1938.
 Wolfe, Capt. L. R., 2620 Grays Ferry Road, Philadelphia, Pa. 1921.
 Wood, Dr. Casey A., Library, McGill Univ., Montreal, Canada. 1916 (1928). [L.]
 Wood, George C., Danville, Calif. 1928.
 Wood, Norman A., Museum Zool., Univ. Michigan, Ann Arbor, Mich. 1916.
 Wood, Dr. Sherwin Francis, Los Angeles Junior College, 855 N. Vermont Ave., Los Angeles, Calif. 1935.
 Woodbury, Dr. Angus M., 248 University St., Salt Lake City, Utah. 1930.
 Woods, Dr. Ralph A., 2468 W. Pico St., Los Angeles, Calif. 1931.
 Woods, Robert S., Box 356, Azusa, Calif. 1920 (1927). [L.]
 Wright, Curtis, Maplewood Ranch, Calistoga, Calif. 1916 (1922). [L.]
 Wright, Frank S., 14 Cayuga St., Auburn, N. Y. 1910.
 Wright, John Thomas, Star Route Box 6, Fresno, Calif. 1936.
 Wymore, Floyd H., 436 North Pine St., Ukiah, Calif. 1936.
 Wythe, Miss Margaret W., Museum Vertebrate Zoology, Univ. Calif., Berkeley, Calif. 1912.

Y-Z

- Yost, Mrs. Myrtle K., 2352 Las Colinas Ave., Los Angeles, Calif. 1923.
 Zahn, Otto J., 2115 Estrella Ave., Los Angeles, Calif. 1896.
 Zech, Miss Lillian, 535 W. Highland Ave., Redlands, Calif. 1916.
 Zerlang, Lawrence, 524 W. Hawthorne St., Eureka, Calif. 1918.



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